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This collection of studies in contrastive linguistics includes the following: "Bilingual Intralinguistic Orthographic Interference" (Philip A. Luelsdorff); "Reassociation of Sentence Melodies" (Wolfgang U. Dressler, Lavinia Merlini Barbaresi); "English Word Stress and Empty Vowel Slots" (Grazyna Rowicka); "Prosodic Features and Narrative Strategies in Polish Discourse" (Maciej Pakosz, Vanessa Flaschner); "A Parameter of Syllabification" (Roland Noske); "Remarks on Voicing Phenomena: With Special Reference to English and Polish" (Piotr Ruszkewicz); "The Definite Articles in English and Mod Greek: A Comparison" (Thanasis Kakouriotis); "Natural Categorization and Functional Sentence Perspective" (Anna Duszak); "Conditionals and Concessives" (Barbara Dancygier); "A Note on the So-Called Indicative Conditionals" (Barbara Dancygier); "A Review of L2 Complementation Production Studies" (Barbara Schwarte); "Contrastive Linguistics in the Classroom" (Peter Harder); "Characteristics of Language Shift in Two American-Hungarian Bilingual Communities" (Klara Falk-Bano); "Intransitive Prepositions in Polish" (Ewa Jaworska); and "Cognitive Processes in Apachean English" (Guillermo Bartelt). (MSE)

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PSiCL XXV

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TABLE OF CONTENTS

Philip A. Luelsdorff (Regensburg): *Bilingual intralinguistic orthographic interference* 5
Wolfgang U. Dressler (Vienna) and Lavinia Merlini Barbaresi (Parma): *Reassociation of sentence melodies* 15
Grażyna Rowicka (Białystok): *English word stress and empty vowel slots* 19
Maciej Pakosz (Lublin) and Vanessa Flaschner (Los Angeles): *Prosodic features and narrative strategies in Polish discourse* 33
Roland Noske (Amsterdam): *A parameter of syllabification* 47
Piotr Ruszkiewicz (Opole): *Remarks on voicing phenomena: with special reference to English and Polish* 61
Thanasis Kakouriotis (Thessaloniki): *The definite articles in English and Mod. Greek: a comparison* 83
Anna Duszak (Warsaw): *Natural categorization and functional sentence perspective* 93
Barbara Dancygier (Warsaw): *Conditionals and concessives* 111
Barbara Dancygier (Warsaw): *A note on the so-called indicative conditionals* . . . 123
Barbara Schwarte (Ames): *A review of L2 complementation production studies* . . 133
Peter Harder (Copenhagen): *Contrastive linguistics in the classroom* 149
Klára Falk-Bánó (Budapest): *Characteristics of language shift in two American-Hungarian bilingual communities* 161
Ewa Jaworska (Oxford): *Intransitive prepositions in Polish* 171
Guillermo Bartelt (Northridge): *Cognitive processes in Apachean English* 183

BILINGUAL INTRALINGUISTIC ORTHOGRAPHIC INTERFERENCE

PHILIP A. LUELSDORFF

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0. *Introduction.* The following remarks are intended as a refinement o our taxonomy of processing strategies leading to bilingual intralinguistic orthographic interference errors (Luelsdorff 1986a, 1986b). We begin with a brief discussion of the experiment used to elicit the data, proceed with a presentation and exemplification of the refined error framework, and conclude with a summary of three of the major conclusions reached.

1. *The group experiment.* Until 1983 our analysis had been an extensive and intensive inquiry into the spelling errors made in English by one native-speaking German pupil in the Hauptschule, grades 6 and 7, age 12, on grade-level English dictations administered privately over a 14-month period. This analysis indicated massive interlinguistic and intralinguistic interference. In order to assess the extent to which these interactions are shared, it was necessary to test a large number of subjects in the German school systems at various stages in the acquisition of English spelling. Pursuant to this goal, the following testing procedure was devised.*

(1) Two groups of subjects were drawn from intact classes in both grades 7 and 9 in each of the three schools comprising the German system of secondary education, the Hauptschule, the Realschule, and the Gymnasium. Within each grade and each school, one group was administered a grade-level dictation followed by an error-correction exercise. The other group was administered the same two tasks, but in the reverse order. 248 pupils were tested, 59 from H,

* Thanks are due W m J. Baker for discussions leading to the design of this experiment.

90 from R, and 99 from G. This procedure yielded data on the development of orthographic and metaorthographic processing strategies.

(2) The grade-level dictations were administered in British English by the regular teachers of the respective classes in order to avoid the possible effect of an unfamiliar face in the classroom. Normally, dictation as a teaching device is discontinued by G9. The dictation procedure followed the recommendations of Deyes (1972) and the words selected from the standard textbooks for H6/H7 (Friedrichs 1970, 1971) were known in advance to be error-prone from the errors in the individual data. All of the pupils had had prior exposure to all of the words dictated, except ⟨juice, salad, store, gate, movie⟩, which were unfamiliar to the pupils in G. The dictation consisted of three short paragraphs, segmented into short phrases, which the teacher read aloud three times, before the dictation, during the dictation, and after the dictation. The pupils were asked to write on alternating lines of the response sheet and told not to make any corrections during their initial transcriptions. Allowance for corrections was made during the final reading by the teacher after the dictations had been written.

(3) Following the initial writing, the pupils were asked to edit their own work by underlining the words they thought to be misspelled and writing the versions they thought to be correct beneath them. This yielded data on ego-errors and ego-corrigibility.

(4) The error-correction exercise, which will be of no further concern to us here, was a written version of the dictation laden with many real errors extracted from the individual data. The errors ranged from obvious to subtle deviations from the standard spellings. Pupils were asked to listen to the dictation, scan the text for errors, underline the spellings thought to be errors, and transcribe the spelling thought to be correct under the spelling thought to be wrong. This yielded data on the pupils' ability to alter-monitor, to detect errors made by others.

The following is a report on the errors made only in the dictations, administered both before and after the error-correction exercise, after the pupils had had a chance to correct their errors. The discussion is restricted to vowel misspellings of the substitution type which are held to be the product of the use of intralinguistic orthographic processing strategies.

In general, our conclusions on processing strategies are thought to be valid insofar as (1) the subjects had had prior exposure to the normative spellings of the words in the texts dictated and (2) the distribution of the major and minor primary and secondary vowel spelling patterns in the experience of the informants parallels their distribution in the language. Absolute certainty on this latter issue would require familiarity with the history of each informant's exposure to the spellings of each of the items dictated, a familiarity which we do not and could not have.

2. *The error framework.* Venezky (1970:101 - 119) divides the vowel spellings of English into two groups or types, primary and secondary. Primary vowel spellings consist of *one* vowel letter (including ⟨y⟩), whereas secondary vowel spellings consist of *two or more* (one of which may be ⟨w⟩ or ⟨y⟩).

Both primary vowel spellings and secondary vowel spellings have major and minor sound correspondences, where the difference between major and minor sound correspondence is the difference between *more* and *less frequent.* Major correspondences are referred to as "regular" or "predictable", minor correspondences as "irregular" or "unpredictable", where regularity is sensitive to surrounding consonant and vowel letters, stress, and morphemic structure.

The above structure of English orthography we present in the diagram in Figure 1.

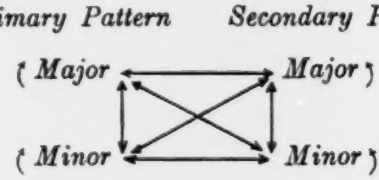

Fig. 1: The structure of English orthography

Since each of the four resulting patterns — the major primary, three minor primary, the major secondary, and the minor secondary — has its own unique characteristic structure, including letters, sound correspondences, distribution, and frequency, we regard each pattern as constituting a module, each module containing a unique set of grapheme-phoneme correspondences.

Errors of substitution occur when two different members of the same module are substituted for one another or when a member of one module is substituted for a member of another. All of the possible substitution error types are presented in the diagram in Fig. 1, where X→Y is to be read: "X is substituted for Y". In our individual study (cf. Luelsdorff 1986a) and in the following our understanding of regularity and irregularity is based on Venezky (1970) and Welna (1982).

Inter- and intramodular interaction yields the following 16 substitution error types, listed and exemplified in Figure 2:

Error Type	*Attempt*	*Target*
1. Primary Regularization	⟨Camebridge⟩	⟨Cambridge⟩
2. Primary Reregularization	⟨jame⟩	⟨jam⟩
3. Primary Irregularization	⟨sommer⟩	⟨summer⟩

4. Primary Re-irregularization	⟨pollover⟩	⟨pullover⟩
5. Secondary Regularization	⟨braught⟩	⟨brought⟩
6. Secondary Reregularization	⟨enjoied⟩	⟨enjoyed⟩
7. Secondary Irregularization	⟨movey⟩	⟨movie⟩
8. Secondary Re-irregularization	⟨broaght⟩	⟨brought⟩
9. Regularization cum Simplification	⟨wer⟩	⟨wear⟩
10. Reregularization cum Simplification	⟨movi⟩	⟨movie⟩
11. Irregularization cum Simplification	⟨pice⟩	⟨piece⟩
12. Re-irregularization cum Simplification	⟨laghe⟩	⟨laugh⟩
13. Regularization cum Complication	⟨Caimbridge⟩	⟨Cambridge⟩
14. Reregularization cum Complication	⟨geit⟩	⟨gate⟩
15. Irregularization cum Complication	⟨coulled⟩	⟨called⟩
16. Re-irregularization cum Complication	⟨wear⟩	⟨were⟩

Fig. 2: Intralinguistic substitution error types

1. Primary regularization (Major Primary → Minor Primary). Primary Regularization refers to the substitution of a Major Primary pattern for a Minor Primary pattern. ⟨aCe⟩ is the Major Primary pattern for /e/ in ⟨came⟩ and ⟨a⟩ is the Minor Primary pattern for /e/ in ⟨Cambridge⟩. Attempt: ⟨Camebridge⟩ for Target: ⟨Cambridge⟩ is therefore the substitution of a Major Primary pattern for a Minor Primary pattern, a Primary Regularization.

2. Primary reregularization (Major Primary → Major Primary). Primary Reregularization is the substitution of a Major Primary pattern for another Major Primary pattern. ⟨aCe⟩ is the Major Primary pattern for /e/ in ⟨came⟩, while ⟨a⟩ is the Major Primary pattern for /æ/ in ⟨jam⟩. Attempt: ⟨jame⟩ for Target: ⟨jam⟩ is therefore the subtitution of one Major Primary pattern for another Major Primary pattern, a Primary Reregularization.

3. Primary irregularization (Minor Primary→Major Primary). Primary Ireregularization refers to the substitution of a Minor Primary pattern for y Major Primary pattern. /ʌ/ is the Major correspondence of the Primary vowel pattern ⟨u⟩ when ⟨u⟩ is followed by a single consonantal, as in ⟨fur, hut, cup⟩, or a consonantal cluster C_1C_2, where $C_1 \neq$ ⟨r⟩, as in ⟨summer butter, custom⟩. /ʌ/ is the Minor correspondence of the Primary vowel pattern ⟨o⟩ when ⟨o⟩ occurs before ⟨m, n, v⟩, ⟨th⟩, and other consonantals as in ⟨comfort, son, another⟩. Thus Attempt: ⟨sommer⟩ for Target: ⟨summer⟩ is the substitution of a Minor Primary pattern for a Major Primary, a Primary Irregularization, reinforced, in this case, by Partial Cognatization to German ⟨Sommer⟩.

4. Primary re-irregularization (Minor Primary → Minor Primary). Primary Re-irregularization refers to the substitution of a Minor Primary pattern for another Minor Primary pattern. /ʊ/ is the Minor correspondence of the

Primary pattern ⟨o⟩ in apparently only ⟨bosom⟩ and ⟨woman⟩. Since ⟨u⟩:/ʊ/ is itself a Minor Primary pattern, Attempt: ⟨pollover⟩ for Target: ⟨pullover⟩ is the substitution of one Minor Primary pattern for another Minor Primary pattern, a Primary Re-irregularization.

5. Secondary regularization (Major Secondary → Minor Secondary). Secondary Regularization refers to the substitution of a Major Secondary pattern for a Minor Secondary pattern. /ɔ/ is the Major correspondence of the Secondary pattern ⟨au, aw⟩, as in ⟨t*au*ght, cr*aw*⟩ and the Minor correspondence of the Secondary pattern ⟨ou⟩, as in ⟨br*ou*ght⟩. Attempts: ⟨br*au*ght, br*aw*ght⟩ for Target: ⟨br*ou*ght⟩ are therefore substitutions of Major Secondary patterns for a Minor Secondary pattern, each a Secondary Regularization.

6. Secondary reregularization (Major Secondary → Major Secondary). Secondary Reregularization refers to the substitution of a Major Secondary pattern for another Major Secondary pattern. ⟨oi⟩ for /oy/ is written in morpheme-medial position, whereas ⟨oy⟩ for /oy/ is written morpheme-finally, with exceptions (e.g. ⟨*oy*ster, r*oy*al⟩, etc.). Attempt: ⟨enj*oi*ed⟩ for Target: ⟨enj*oy*ed⟩ is thus the substitution of one Major Secondary pattern for another Major Secondary pattern, a Secondary Reregularization.

7. Secondary irregularization (Minor Secondary → Major Secondary). Secondary Irregularization refers to the substitution of a Minor Secondary pattern for a Major Secondary pattern. The Secondary pattern ⟨ey⟩ has the Minor correspondence /i/ in words like ⟨k*ey*⟩ and ⟨monk*ey*⟩. The Major correspondence of Secondary ⟨ie⟩ is /i/, as in ⟨ach*ie*ve, n*ie*ce⟩. Thus, Attempt: ⟨mov*ey*⟩ for Target: ⟨mov*ie*⟩ is the substitution of a Minor Secondary correspondence for a Major Secondary correspondence, a Secondary Irregularization.

8. Secondary re-irregularization (Minor Secondary → Minor Secondary). The substitution of one Minor Secondary pattern for another Minor Secondary pattern constitutes a Secondary Re-irregularization. /ɔ/ is the Minor correspondence of the Secondary pattern ⟨oa⟩, as in ⟨br*oa*rd, b*oa*rd, *oar*⟩, the Minor correspondence of ⟨oo⟩, as in ⟨d*oo*r, fl*oo*r⟩, and the Minor correspondence of the Secondary pattern ⟨ou/ow⟩, as in ⟨c*ou*gh, tr*ou*gh⟩. Thus, Attempts: ⟨br*oa*ght, br*oo*ght⟩ for Target: ⟨br*ou*ght⟩ exemplify the substitutions of Minor Secondary patterns for a Minor Secondary pattern, each a Secondary Re-irregularization.

9. Regularization cum simplification (Major Primary → Minor Secondary). Regularization cum Simplification is the substitution of a Major Primary pattern for a Minor Secondary. /ɛ/ is the Major correspondence of the Primary pattern ⟨e⟩, as in ⟨l*e*t, b*e*t, w*e*t⟩ and the Minor correspondence of the Secondary pattern ⟨ea⟩, as in ⟨w*ea*r, t*ea*r⟩. Attempt: ⟨wer⟩ for Target: ⟨w*ea*r⟩ is thus the substitution of a Major Primary pattern for a Minor Secondary pattern, an example of Regularization cum Simplification.

10. Reregularization cum simplification (Major Primary → Major Secondary). Reregularization cum Simplification refers to the substitution of a Major Primary pattern for a Major Secondary. ⟨i⟩ and ⟨y⟩ most frequently correspond to /i/ in unstressed position, as in ⟨taxi, city⟩. As noted above, the Major correspondence of the Secondary pattern ⟨ie⟩ is /i/, as in ⟨achieve, piece⟩. Attempts: ⟨movi, movy⟩ for Target: ⟨movie⟩ are thus examples of the substitution of a Major Primary pattern for a Major Secondary, Reregularization cum Simplification.

11. Irregularization cum simplification (Minor Primary → Major Secondary). Irregularization cum Simplification is the substitution of a Minor Primary pattern for a Major Secondary pattern. The Minor correspondence of the Primary pattern ⟨iCe⟩ is /i/, as in ⟨machine, ravine⟩, and the Major correspondence of the Secondary medial pattern ⟨ie⟩ is /i/, as in ⟨achieve, piece⟩. Attempt: ⟨pice⟩ for Target: ⟨piece⟩ thus exemplifies the substitution of a Minor Primary pattern for a Major Secondary pattern, an Irregularization cum Simplification.

12. Re-irregularization cum simplification (Minor Primary → Minor Secondary). Re-irregularization cum Simplification refers to the substitution of a Minor Primary pattern for a Minor Secondary. /a/ is the Minor correspondence of the Primary pattern ⟨aCe⟩, as in ⟨are, massage⟩ and the Minor correspondence of the Secondary pattern ⟨au⟩, as in ⟨laugh⟩. Attempt: ⟨laghe⟩ for Target: ⟨laugh⟩ thus exemplifies the substitution of a Minor Primary pattern for a Minor Secondary pattern, a Re-irregularization cum Simplification.

13. Regularization cum complication (Major Secondary → Minor Primary). Regularization cum Complication refers to the substitution of a Major Secondary pattern for a Minor Primary. /e/ is the Major correspondence of the Secondary pattern ⟨ai⟩, as in ⟨wait, rain⟩ and the Minor correspondence of the Primary pattern ⟨a⟩, as in ⟨Cambridge⟩. Attempt: ⟨Caimbridge⟩ for Target: ⟨Cambridge⟩ thus illustrates the substitution of a Major Secondary pattern for a Minor Primary pattern, a Regularization cum Complication.

14. Reregularization cum complication (Major Secondary → Major Primary). Reregularization cum Complication refers to the substitution of a Major Secondary pattern for a Major Primary. /e/ is the Major correspondence of the Secondary pattern ⟨ei⟩, as in ⟨weight⟩, and the Major correspondence of the Primary pattern ⟨aCV⟩, as in ⟨potato⟩. Attempts: ⟨geit, poteito⟩ for Targets: ⟨gate, potato⟩ are therefore examples of the substitution of a Major Secondary pattern for a Major Primary, Reregularization cum Complication.

15. Irregularization cum complication (Minor Secondary → Major Primary). Irregularization cum Complication refers to the substitution of a Minor Secondary pattern for a Major Primary. /ɔ/ is the Minor correspondence of

the Secondary pattern ⟨au/ow⟩, as in ⟨*cough*, t*rough*⟩ and the Major correspondence of the Primary pattern ⟨a⟩ directly after ⟨w⟩, as in ⟨*want*, *wash*, *watch*⟩, and before a final or preconsonantal ⟨l⟩, as in ⟨*call*, *salt*, *walk*⟩. Thus, Attempt: ⟨*coulled*⟩ for Target: ⟨*called*⟩ illustrates the substitution of a Minor Secondary pattern for a Major Primary pattern, an Irregularization cum Complication.

16. Re-irregularization cum complication (Minor Secondary → Minor Primary). Re-irregularization cum Complication refers to the substitution of a Minor Secondary pattern for a Minor Primary. /ɜ/ corresponds regularly to ⟨ea⟩ before ⟨r⟩ followed by a consonantal, as in ⟨p*ea*rl. h*ea*rd, s*ea*rch⟩ and is the Minor correspondence of Secondary ⟨ea⟩, as in ⟨y*ea*r⟩. Moreover, /ɜ/ is a Minor correspondence of Primary ⟨e⟩ in ⟨w*e*re⟩. Attempt: ⟨w*ea*r⟩ for Target: ⟨w*e*re⟩ thus exemplifies the substitution of a Minor Secondary pattern for a Minor Primary, a Re-irregularization cum Complication.

3. *Some conclusions.* We have presented a description of our group experiment used to elicit our error data and a finely graded taxonomy of the processing strategies held to underlie the intralinguistic vowel spelling errors of the substitution type. We end with a brief summary of three of the major conclusions reached.

(1) The same sound in different words may be spelling-error prone in different ways. The /ɔ/ in ⟨walk⟩, for example, was misspelled ⟨oo, o, oa, aCCe⟩, while the /ɔ/ in ⟨called⟩ was misspelled ⟨uo, o, au, oa⟩. Moreover, the same sound with the same normative spelling may be spelling-error prone in different ways in different words. For example, the /o/ in ⟨woke⟩, with the normative spelling ⟨oCe⟩, was misspelled ⟨ooC, oC, ouC, oaC, owC, a(C)C, uCC, oo, e⟩, while the /o/ in ⟨wrote⟩, with the same normative spelling ⟨oCe⟩, was misspelled ⟨ou, oa, o, oo, oe⟩. Furthermore, the same normative spellings of different sounds in different words may be spelling-error prone in different ways. For example, the ⟨ie⟩ for /i/ in ⟨piece⟩ was misspelled ⟨eaCe, iC(C)e, ie, ea, ee, eCe, eeCe, e⟩, while the ⟨ie⟩ for /ɛ/ in ⟨girlfriend⟩ was misspelled ⟨e, ee, i, eeCe, ae⟩. Finally, even in those cases where the set of spelling-error types for a vowel in one word is properly included in the set of spelling-error types for the same vowel in a different word, the members of each set of spelling error types for each word may exhibit different absolute frequencies and these frequencies may appear in different ranks. For example, the set of misspellings of the /i/ in ⟨cheese⟩ is properly included in the set of misspellings of the /i/ in ⟨piece⟩, but whereas ⟨ee⟩ is the most frequent misspelling of the /i/ in ⟨cheese⟩ (18.78%), it is the fifth most frequent misspelling of the /i/ in ⟨piece⟩ (.81%).

These (rather discouraging) observations lead us to conclude that it is not just sounds, nor just letters, nor even letter-sound correspondences, which

are misspelling-prone in certain ways, but letter-sound correspondences *in individual words*. This we refer to as the "word-effect for spelling errors".

(2) Statements of the form "X is substituted for Y by means of the processing strategy Z", as in ⟨uCe⟩ is substituted for ⟨uiCe⟩ by means of Reregularization cum Simplification, miss an important generalization, in fact the most important generalization about errors of the substitution type. The fundamental fact about such errors is that any letter(s) X may be substituted for *any* letter(s) Y on the condition that X and Y stand for the *same sound* in the standard orthography. Casting this sufficient constraint on error variables of the substitution type in semiotic terms, the signifiants of two different signs may substituted for one another if they have the same signifiés. Call this condition on substitution error variables the "Identical Signifié Constraint". We are thus left with the notion of the general operation of substitution (a *mechanism* in the terminology of this investigation) of being subject to conditions or constraints (*processing strategies* in the terminology of this study), i.e. of rules or rule-like operations interacting with principles. On this theory, the substitution of letter naming is subject to the constraint that the letter sound be contained in the letter name, i.e. that the letter X may be substituted for the letter Y if the signifiant of X (the letter name) properly or improperly includes the signifié of Y (the letter sound). The negative transfer of a native language GPC to the target language, on the same theory, is subject to the constraint that a native letter(s) X may be substituted for a target letter(s) Y if X and Y have identical or similar signifiés. Thus viewed, the development of spelling skills is the development of conditions on rules, some conditions becoming less general, others more general, some added, others lifted.

The "Identical Signifié Constraint" must be supplemented with two additional minor, but important, constraints, called the "Near Neighbor Constraint" and the "Close Relative Constraint", both with domains in interlingual, rather than intralinugual transfer. For the details, I refer the interested party to *Constraints on error variables in grammar* (Luelsdorff 1986a).

(3) Several recent models of English contain two routes to oral reading, called the *lexical* and the *non-lexical* (Coltheart 1984:68-69). On the lexical route, a word-specific input letter pattern is matched with the same word-specific letter pattern in the mental lexicon and associated with this phonological representation. On the non-lexical route, letter patterns serve as the nput to a set of regular grapheme-phoneme correspondences whose suc-essive applications assemble the pronunciations of the graphemically parsed trings.

Henderson (1984a:2-4)-points out that the distinction between a lexical and a non-lexical route to oral reading is based on the dichotomization of the English vocabulary into *regular* and *exception* words, where a word is

regular if its pronunciation is predictable from its spelling by means of the most frequently occurring GPCs in the language. According to the dual-route hypothesis, irregular words or irregular portions of words are read orally on the lexical route, whereas pseudowords, regular words, or regular portions of words or pseudowords are read orally on the non-lexical, rule-governed route.

Now, were one to apply the dual-route hypothesis to spelling, then pseudowords, regular words and sounds with regular letter correspondences would be processed non-lexically, i.e. by means of PGCs, while irregularly spelled words or sounds with exceptional letter correspondences would be processed lexically, in a manner that is word specific. While this hypothesis predicts the occurrence of spelling errors of the reregularization type, it fails to predict errors of regularization, irregularization, and re-irregularization, however, because, on this hypothesis, irregular spelling patterns are *lexical*, not rule-governed, i.e. word-specific, not rule-general. The abundance of spelling errors of regularization, irregularization, and re-irregularization, however, argues strongly against the hypothesis of a dual-route to spelling and strongly in favor of the hypothesis that irregularly spelled words, like regularly spelled words, are spelled by means of rules, i.e. PGCs. On this hypothesis, the difference between spelling a regular and an irregular word is not that the former is rule-governed, and the latter lexical, but that the former is word-general, i.e. controlled by processes affecting the majority of the occurrences of the sound-type being spelled, and the latter word-specific, i.e. controlled by processes affecting the minority of the occurrences of the sound-type being spelled, with both regular and irregular spellings being rule-governed. Since this latter hypothesis — call it the "Dual Word Hypothesis" — predicts erorrs of regularization, irregularization, and re-irregularization, in addition, of course, to errors of reregularization, i.e. all and only the substitution error types in this investigation, we consider it confirmed.

The Dual Word Hypothesis on spelling may have implications for the Dual Route Hypothesis on reading. If, for example, spelled pseudowords are orally read irregularly, say ⟨preat⟩ as [pret], it must mean that they are being read via a non-lexical route. But if a reader is reading pseudowords via the non-lexical route, it must mean that the irregular spellings themselves are not lexical, but rule-governed.

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REASSOCIATION OF SENTENCE MELODIES*

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The only models that so far have dealt explicitly with reassociation of tones to lexical material can be found in Africanist literature on floating tones and similar phenomena, cf. e.g. Angenot (1985), Ahoua (1986)) and in Autosegmental Phonology (cf. e.g. Halle and Vergnaud 1982). The domains within which such associations were accounted for were the syllable, the foot, the word, the phrase, or the sentence.

Here we want to propose that the domain of reassociations should be extended to discourse (cf. Gibbon and Richter 1984), i.e. to utterances, normally consisting of two or more sentences.

Let us start with an example reported by Mansfield (1985:67), an answer given to a telephone call by the business *Harp Heating*, and describe (in a simplified manner) the intonation contour with 4 tones: L (low), M (mid), MH (mid high), H (high).:

(1) Harp Heating. Can I help you?
MH MH M MH M MH H

And let us assume that MH and M have already been assigned to stressed and unstressed syllables respectively, with exception of the clause/sentence/intonation unit final syllable which is reserved for boundary tones (B) (This is a simplification in comparison to Liberman (1978:120ff)). At this inter-

* We are indebted to Grzegorz Dogil for enlightening discussions.

mediary point of derivation we have the associations as in (2):

(2) Harp Heating. Can I help you

MH MH B_1 MH M MH B_2

Now boundary tones are assigned to the final syllable of each sentence or clause (a gross descriptive simplification for our purpose): a) In a discourse final declarative sentence L is assigned; b) in a non-final declarative sentence M is assigned; c) in questions H is assigned. Here b) and c) apply:

(3) ... Heating ... you → ... Heating ... you

MH B_1 B_2 → MH M H

However such routine answers to a client's telephone call can be shortened by deleting the redundant question "Can I help you?", if a trace of the question remains, e.g. the boundary tone of the question. The stability of the question boundary tone can be handled by reassociation:

(4) Harp Heating

MH MN M MH M MH H

But the observed answers are of the type (5a) and not (5b):

(5a) Harp Heating (5b) *Harp Heating

MH MH H MH MH M H

Therefore either the right boundary tone (H) is allowed to oust ("delink") the left boundary tone (M), or reassociation precedes boundary tone assignment:

(6) Harp Heating

MH MH B_1 MH M MH B_2

According to the principle of precedential association of the rightmost tone (Halle and Vergnaud (1982:67); Kiparsky (1985:126); Ahoua (1986)) B_2 rather than B_1 is associated to the syllable *-ting*, and then H is correctly assigned to it.

Simiarly we get either (7a) or (7b):

(7a) Yes: Can I help you? (7b) Yes?

MH M MH M MH H MH H

i.e. we get in (7b) a /MH—H Yes/ distinct from equally isolated /H Yes/, the "te ephone" *yes* meaning "please continue!". These tone assignments

(incl. tone reassociation) presuppose that final stressed syllables are stipulated to be able to be associated to two tones.

Similarly we get in Italian (8a) vs. (8b) (' symbolizes stress):

(8a) Prónto. Desidera?

MH M M MH H

'Speaking. (You) want?'

(8b) Prónto?

M H

'Speaking?'

In *Desídera*? the second-last unstressed syllable receives an allophonic intermediate tone between MH and H. Similarly in two prestress syllables we get intermediate allophonic tones in (9a) and (9b):

(9a) Alitália. Desídera?

MMHM MMN H

(9b) Alitália?

MMHH

Of course also in these tone (re)associations on the discourse level association lines may not cross. It seems that a formal system accounting for tone assignments can be profitably extended to the discourse level.

Before continuing in this direction we must discuss the alternative hypothesis that only one single sentence is involved in (6) *Harp Heating*?, (7b) *Yes*?, (8b) *Pronto*?, (9b) *Alitalia*?. These utterances would still be elliptic, but their intonation would be derived from a single sentence contour. However, what should be the monosentential non-elliptic counterparts to (6, 7b, 8b, 9b)? According to native speakers of both languages it would be something like

(6') Is-this Harp Heating?

(9b') Parlo con Alitalia? 'Am I speaking with Alitalia?',

i.e. it would be questions asked by a client, not by the respective employee, and their meanings would be quite different from (1, 7, 8, 9).

However, if we stick to our interpretation of a bisentential source then we can recur to the well-known device of elliptic deletion of whole sentences in discourse. Only normally the intonation contour of the sentence preceding the deleted sentence remains intact. In our case the preserved sentence would take over the final contour of the deleted sentence following it.

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ENGLISH WORD STRESS AND EMPTY VOWEL SLOTS[1]

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One of most significant developments in the area of English stress must have been Hayes's metrical account (1982). Hayes simplifies stress assignment rules and reveals systematic distinctions between members of different lexical categories. He is able to do so by means of extrametricality, first introduced by Liberman and Prince (1977). In Hayes's paper the notion of extrametricality is developed and shown to account for apparently deviant stress contours of numerous English words.

Hayes assumes after Harris (1982) that languages may contain extrametricality rules which exclude some portions of words from the application of stress rules. According to him extrametricality may be assigned only at the right edge of stress domains. It appears, however, that the universal Peripherality Condition (Hayes 1982:270) should not be viewed as a constraint on rules assigning the feature in question, but as a "visibility" condition on that feautre. That is to say, a nonperipheral syllable may also bear the feature [+extrametrical], but its extrametricality will not be noticeable to stress rules. This is the position argued for in Archangeli (1984) and Franks (1985).

Three distinct extrametricality rules are introduced in Hayes (1982) which apply to (a) nouns, (b) derived adjectives, and (c) other words. Under such an account, extrametricality explains differences in the stress behaviour of various lexical categories.

Once the right portions of various grammatical categories have been "crossed out" all words undergo foot construction rules — the English Stress Rule and Strong Retraction — and word tree construction rules. Then extrametrical syllables are attached by means of Stray Syllable Adjunction.

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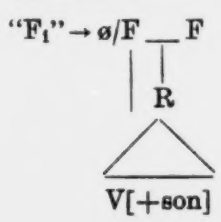
[1] I would like to express my gratitude to Prof. Gussmann for his valuable advice and comments on this paper.

Hayes's analysis of English stress phenomena is couched within the framework of Lexical Phonology which assumes that (most of) phonological rules, including stress assignment, apply cyclically in the lexicon after every word-formational operation. As far as English stress is concerned, its cyclicity is commonly accepted by both proponents and opponents of Lexical Phonology. The basic argument here is that derived words often exhibit subsidiary stresses on syllables which would have been primarily stressed in their sub-constituents if they had surfaced as full entities themselves. This fact cannot be straightforwardly accounted for in a noncyclic framework

The point in Hayes's model which we would like to consider more closely is destressing, or rather defooting. Hayes introduces three destressing rules each of which has the effect of removing the metrical structure of a foot in weak position. Its syllables are then adjoined to another foot by Stray Syllable Adjunction (SSA). The task of such rules is to produce trisyllabic feet on the surface, even though foot construction rules can create at most binary ones. At the same time they account for otherwise inexplicable vowel reduction in the defooted syllables. Note, however, that the presence of mechanisms like destressing enlarges the amount of redundancy in the grammar — it involves setting up the structure of a foot in order to reduce it afterwards. This is not to say that defooting rules should be done away with altogether. Our aim is to show that many of the apparently defooted syllables could have never become metrical feet. It follows that the application of foot deletion is much more restricted than it has been assumed by Hayes.

We would like to concentrate on the rule of Sonorant Destressing which has already been dealt with in Kiparsky (1979) and formulated in Hayes (1982:253) as follows:

(1) Sonorant Destressing



Condition: F_1 is not dominated by *s*.

The condition imposed on (1) prevents the reduction of strong feet created on earlier cycles and implies that Sonorant Destressing must apply in the cycle after the English Stress Rule (henceforth: ESR) and Strong Retraction, but before Word Tree Construction. Otherwise the second syllables of *legendary*, *desultory*, etc., would have been marked as strong by the word tree.

Consider, however, the derivation of the adjective *momentary* ['məməntəri] which Hayes includes among the examples supporting Sonorant Destressing:

(2) mo ment — first cycle

s w — ESR

Word Tree Construction

SSA

mo men tary — second cycle

ESR

Strong Retraction

Now Sonorant Destressing should take place. Observe, however, that the metrical structure assigned so far lacks the foot following F_1 in (1). The foot must not be left out of the rule's formulation, because otherwise Sonorant Destressing would apply to the second syllables of verbs such as *record* and *present* (their final consonants being excluded by Consonant Extrametricality). Instead of making any ad hoc amendments to (1) let me put forward a radically different explanation for vowel reduction in the syllable in question, which has been suggested to me by Professor Gussmann.

The reduction of English vowels under lack of stress has long escaped a satisfactory formulation. The problem is that the result of the process, namely shwa, is rather difficult to characterise in terms of distinctive features. Hence it is no less problematic to specify the changes occurring in reduced vowels. It has been worked out for French in Anderson (1982b) and suggested for English as well in Anderson (1982a) that the result of reduction processes should be viewed as an "empty" vowel slot, i.e. a vocalic position specified for no quality features which still performs the role of the nucleus within the syllable. Vowel reduction must then be understood as a dissociation process delinking a vocalic slot in the skeleton under certain conditions from its segmental features.

Let us reverse the idea and say that the second syllable of *momentary* does not undergo vowel reduction as a consequence of its destressing, but it cannot be stressed because its underlying representation contains an empty V slot instead of a full vocalic feautre complex. This slot is filled by a late redundancy rule associating empty vowel matrices with feature values representing the right contextual variant of [ə] to be introduced.

Note that neither in *momentary* nor in its base word *moment* does the second vowel ever show up in its full form.[2] The same situation obtains in the

[2] Note that apart from *momentary* there is *momentous* where the second syllable bears the main stress. We suppose that the latter word comes from *momentum* with a fully specified second vowel. The two words, *moment*/mɔmnt/ and *momentum* (mɔmentVm), may have been borrowed independently into English.

case of many nouns and adjectives in *-ary* and *-ory*:

(3)	legendary	['ledʒəndəri]	cf. legend	['ledʒənd]
	voluntary	['vɔləntəri]	cf. volunteer	[vɔlən'tiə]
	secondary	['sekəndəri]	cf. second	['sekənd]
	prebendary	['prebədnəri]	cf. prebend	['prebənd]
	sedentary	['sedəntəri]		
	desultory	['desəltəri]		
	inventory	['invəntəri]		
	promontory	['prɔməntəri]		
	repertory	['repətəri]	cf. repertoire	['repətwa:]
	offertory	['ɔfətəri]	cf. offer	['ɔfə]

At least in the case of the verb *second* ['sekənd] if the second syllable had contained a fully specified vowel, the word should have been stressed and pronounced as the other verb of the same spelling, i.e. [si'kɔnd]. Here the assumption of an empty V slot accounts for the lack of stress on *-con-* in both the base and the derivative.

Most of the examples adduced by Hayes in support of his Sonorant Destressing also yield to the analysis with empty V slots: their shwas preceding sonorants never alternate with full vowels. Cf.:

(4)	a.	gílbertite	
		árgentite	cf. árgent
	b.	séprentite	cf. sérpent
		sáturnine	cf. sáturn
		cólumbine	

(4)	b.	continued	
		célandine	
		brígandine	
		brílliantine	
		gálantine	
		églantine	
		quárantine	
		válentine	
		líbertine	cf. líberty (?)
		véspertine	cf. vésper
		Flórentine	cf. Flórence

Such an analysis is particularly convincing with monomorphemic words. Here are some examples and the representations proposed for them:

(5)	Hóttentòt	/hɔtVntɔt/
	Bálderdash	/baldVrdæʃ/
	Háckensack	/hækVnsæk/

Álgernòn	/ælgVrnɔn/
Jáckendòff	/dʒækVndɔf/
ámpersand	/æmpVrsænd/
dávenport	/dævVnpɔrt/
cávalcade	/kævVlkæd/
mérchandise	/mertʃVndiz/

If we rejected the idea of empty vocalic slots and tried to establish representations with all vowels exhaustively specified, there would be no evidence as to what vowels should be postulated. The representations in the right column of (5) reflect then the speaker's actual knowledge of the words on the left.[3]

One source of empty vocalic slots may be lexical representation. This must be the case with those instances of [ə] which persist throughout various derivatives of a morpheme. See, for example:

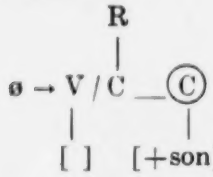
(6) conifer — coniferous
adulterous — adultery
ponder — ponderance
temper — temperance — temperate

Compare, however, the following pairs:

(7) utter — utterance
enter — entrance

The form *entrance* reveals that the underlying form of the base morpheme is /entr/. The sequence *-tr-* in the coda of the verb would violate the Sonority Hierarchy, therefore a rule inserts an empty V to break the unsyllabifiable cluster.[4] The rule reads approximately:

(8) V insertion



where: R — Rhyme
(C) — extrasyllabic consonant
V — empty vowel slot

[3] As a matter of fact, Hayes expresses the same idea on p. 261: "for a speaker who hears only the *ábracadábra* variant, the underlying vowel quality of the second syllable is not available owing to the lack of phonologocal alternations". However, he is not able to capture the generalisation because of the insufficiencies of his framework.

[4] The difference between an underlying empty V slot and one introduced by a rule is sometimes obliterated by syncope. We assume that there is an optional empty V deletion rule which applies in fast speech and affects Vs in open syllables. It accounts for variant pronunciations of words such as *literature* ['litəriʃə].

Then resyllabification creates a new syllable on the V slot. In some dialects a rule of sonorant spreading follows which bleeds the rule of shwa insertion. Consequently, we get either ['entr]/by sonorant spreading/ or ['entə] (by shwa insertion and final *r*-drop).[5]

The same analysis can, as a matter of fact, be also applied to the words in (3), (4) and (5). It may be assumed that, for instance, ***prebendary***, ***gilbertite*** and *Hottentot* come from /prebndæri/, /gilbrtɪt/ and /hɒtntɔt/, respectively. Syllabification rules leave out extrasyllabic sonorants, since *-bn-*, *-br-* and *-tn-* are not possible codas in English, and *-nd-*, *-rt-* and *-nt-* are not possible onsets, either. Then (8) applies inserting a V in front of the sonorants. In the absence of direct evidence such as ø∼ə alternations in related words it may seem arbitrary to decide in favour of or against such a solution. However,since (8) is necessary in English phonology anyway, we reduce the amount of redundancy in the lexicon assuming that the Vs in question are also its results.

If we now want empty Vs to account for the lack of stress on syllables containing them, we must make foot construction rules act so as not to stress syllables with underspecified nuclei. Instead of reformulating the English Stress Rule and Strong Retraction we suggest the following restriction on the operation of foot construction rules:[6]

(9) Do not mark strong or create a monosyllabic foot a syllable containing a single empty V node in the nucleus.[7]

Christine ter Mors (1985) argues that this is the rule of syllabification in Klamath that introduces empty V nodes where they are demanded by the syl-

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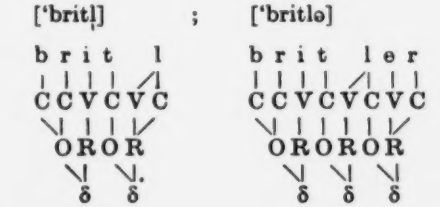
[5] Unlike in some other analyses (e.g. Mohanan (1985)), we do not suppose that sonorant syllabification brings about a change of C→V, but that it is a spreading rule: V C.
| |
[+son] [ ][+son]
Observe that a syllabic sonorant may function as both the nucleus of one syllable and the onset of the next one:



[6] Condition (9) can easily be translated into a grid theory such as, for instance, that of Halle and Vergnaud (1986): "Do not place a line 1 grid over an empty vowel".

[7] The restriction must differentiate between short [ɔ] and long [ɔ:] which may carry stress. There is good reason to suppose that the latter sound at least at some stage in the derivation is a bimoric empty nucleus VV.

lable template. However, her analysis cannot be transplanted to English. Many class I suffixes, for instance, verbal *-en-*, *-ate-* and *-ise-*, attach to bases with specific syllabic structure: *-en* selects only monosyllables, while *-ate-* and *-ise-* forms of two or more syllables (cf. Gussmann 1986). It follows that syllabification must come before any suffixation. But if we assume then that the syllabification rule inserts empty V slots, there is no way to derive *entrance*. We conclude therefore that V insertion is distinct from syllabification.

The analysis presented above — one making use of empty vocalic nodes and of a rule inserting Vs — can be shown to have numerous advantages over any previous one. First and foremost, it views vowel reduction to [ə] as one and the same (delinking) process in the case of all vowels, no matter what their feature values are. It relates all occurrences of shwa tracing them back to empty Vs. Thus, it explains why both reduced vowels and inserted ones are [ə]. It also enables us to account for the fact that shwa, unlike any other vowel, appears in unstressed syllables exclusively. Last but not least, we can handle sonorant syllabification in a plausible way (cf. note 5).

Let us now consider the position of (8) among other phonological rules. Note the following words:

(10)	A	B	C
	remember	remembered remembering	remembrance
	cumber	cumbered	cumbrance
		cumberer$_N$	cumbrous
	resemble	resembled	resemblance
	[ri'zembl]	[ri'zembld]	[ri'zembləns]

The words in (C) are derivatives of class I suffixes, i.e. those preceded by "+", while the words in (B) are derived by means of class II and inflectional suffixes carrying "#". We could conclude that (8) applies if the word boundary follows the extrasyllabic sonorant, and not the morpheme boundary. However, (8) should also be applicable to the words in (3), (4) and (5) where there is no evidence for an internal boundary to trigger the rule. Besides, boundary distinctions have commonly been rejected as insufficient to handle various cases of application and non-application of phonological rules in derived contexts. Several other solutions have been postulated insetad, of which Lexical Phonology offers one of the most appealing. According to it, there are two types of rules: lexical, applying only in derived contexts, and postlexical, applying "across the board". Our rule of V node insertion applies to nonderived forms, hence should be ordered among postlexical rules. If it were so, hovewer, it would not differentiate between e.g. *-er*$_N$ and *-ance*$_N$ derivatives. Therefore we conclude that the principle of strict cyclicity restricting the application of the so-called level 1 phonological rules to derived environments is untenable.

The validity of some aspects of cyclic theories of phonology has already been questioned several times (cf. Gussmann (1985), Szpyra (1985); Szpyra's doctoral dissertation (1986) not only contains profound criticism of Lexical Phonology, but also offers alternative proposals and solutions). Cyclicists themselves admit that cyclicity may be the property of some (and not all) lexical strata (cf. Halle and Mohanan (1985), Kiparsky (1985)). We ould like to devote more space to the latter work, since it discusses several processes from different languages which have the same property as our V slot insertion: they apparently disobey the original version of the Strict Cycle Condition (cf. Mascaró (1976)). Kiparsky reformulates the Strict Cycle Condition (henceforth: SCC) so that it does not restrict rules of the last lexical level. This obviously amounts to a serious weakening of a most fundamental principle of Lexical Phonology. We would like to put forward an alternative analysis and compare briefly both approaches against the background of some of the processes discussed in Kiparsky (1985).

Our proposal owes a lot to McCarthy's (1979) theory of nonconcatenative morphology. It is based on the idea that in the derivation, morphemes may not concatenate but remain on separate tiers until the process of Tier Conflation, whereby the information represented on independent tiers is mapped onto a single tier (cf. McCarthy (1986)). All the rules preceding Tier Conflation treat the morphemes as separate entities. Let us assume that English class I affixes as well as irregular inflectional ones do concatenate with their base words (Level I morphology), whereas class II affixes, compound constituents and regular inflectional endings do not (Level II morphology).[8] Phonology also applies in two blocks — one before and the other Tier Conflation (cf. note 8), but they are not sandwiched between morphological strata. Derivation proceeds in the following manner. Level I derivatives and simplex words which have not entered any affixations in the first stratum undergo Level I phonological rules which are insensitive to their internal morphological structure. Structures added in Level II morphology remain as yet on separate tiers and are interpreted in isolation. Afterwards Tier Conflation takes place followed by other phonological rules which now operate on structures including material affixed on Level II. Within this framework rule (8) applies early in Level I phonology. As a matter of fact, no rule can be found which must precede (8). Hence phonological Level I may be supposed to begin with V-slot insertion.

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[8] The results of this paper do not bear on the question whether English has two or more levels of morphology. If, however, more strata should be postulated (e.g. II—class II derivation, III—compounding, IV—inflection), it follows that there must be several Tier Conflations and several layers of phonology.

Such a model offers a natural explanation of the fact acknowledged in Kiparsky (1985): that Level I phonological rules do not apply to forms ente-entering class I affixations. While Kiparsky needs to reformulate the Strong Cyclicity Condition to account for the phenomenon, in our framework this follows from the assumption that there are no internal cycles in Level I phonology.

Consider now the simplification of final /mn/ in English which takes place word-finally and before suffixes other than class I ones:

(11) a. damn+ation hymn+al
damn+able hymn+ology

b. damn hymn
damn#ing hymn##index

As our V-insertion, the rule in question may not be ascribed to Level 1 of Lexical Phonology because it applies to underived *damn*, *hymn*, etc. Neither is it postlexical, since it differentiates between class I and other suffixes. Kiparsky's SCC must block the application of the simplification rule until the word level to derive the correct result. Within our framework, on the other hand, *n*-deletion turns out a regular pre-Tier Conflation (or Level I) rule.

Kiparsky claims the SCC is necessary to dictate the cyclical application of rules in derived contexts and "across the board" application in non-derived environments. One of the rules applying in both ways is said to be Icelandic *u*-epenthesis. Consider the following forms (Kiparsky, 1985: 90):

(12) dag+um	→dögum	bylj+um	→byljum
dag+r	→dagur	bylj+r	→bylur
dag	dag	bylj	→byl
dag+r#inn	→dagurinn	bylj+r#inn	bylurinn
dag#inn	→daginn	bylj#inn	→bylinn

lifr+um →lifrum (does not take -*r*)
lifr →lifur (does not take -*r*)
lifr#ina →lifrina

where: /dag/—"day", /bylj/ — "snowstorm", /lifr/ —

level — case endings: dat. pl. /um/,
nom. masc. sg. /r/,
acc. sg. — null,

level 2 — the enclitic article /inn/, /ina/ —
(nom. and acc. sg.).

Under Kiparsky's analysis, the cyclic *u*-epenthesis may operate on derived /dag+r/ and /bylj+r/, but not on /lifr/. The input to level 2 morphology becomes [dagur], [byljur], but still [lifr] (hence *lifr # i'na* without *u*). The *u* in underived *lifur* is inserted by a postlexical application of the same rule.

We think that there is no need for multiple application of *u*-epenthesis. Apparently Icelandic has only one Level II (or post-Tier Conflation) rule of V-insertion whose operation is shown in *lifur*. The suffix *-r*, on the other hand, carries an underlying V slot. The empty slots of both sources are filled in with the feature values for [u] by a late redundancy rule.

It would take us far beyond the main concern of this paper to deal with the other processes discussed by Kiparsky. Let us remark, however, that they also yield to a noncyclic analysis. This, combined with the results of the preceding discussion, questions the role of the SCC as the language universal principle organising the lexicon. It would be, however, too hasty to draw a conclusion on the basis of just a few individual processes from various languages. Let us therefore restrict ourselves to English.

As far as the latter language is concerned, V insertion is not an isolated piece of evidence against strict cyclity. As has already been said, many more counterexamples may be found in the work of many researchers. Anderson's remark (1982a) still holds true that, as a matter fact, most evidence for the cycle is confined to the area of stress. Note that in Halle and Mohanan's (1985) account of English phonology the bulk of rules ascribed to cyclic stratum 1 are metrical. The cyclic nature of metrical rules in English is well-known. However, as to the other rules included in stratum 1, we cannot see why they should be regarded as cyclic.

The distinct character of English metrical rules against the rest of phonology has often been pointed out, e.g. in Anderson (1982a) and Kaisse and Shaw (1985). Unlike most phonological rules, they build structure rather than change it. Hence their mode of application is likely to differ from the rest of phonological rules. That is to say, the cyclicity of English stress assignment does not entail the cyclicity of English phonology in all. In fact, our analysis points to the opposite. Certain rules may be assumed to apply cyclically without endorsing the claim that phonology and morphology are intermingled. This is the viewpoint expressed in a recent article by Halle and Vergnaud (1986):

(13) "For us, as for SPE, morphology is distinct and separate from phonology. Morphology interacts with phonology in that it creates the objects on which the rules of phonology operate" (1986:10).

Halle and Vergnaud's framework differs from ours in many respects. Among other things, they assume that phonological strata may still be specified as

cyclic or noncyclic. However, since their paper is devoted to stress phenomena, it includes hardly any evidence for cyclicity elsewhere in phonology.

Our proposal concerning the organisation of morphology and phonology requires much more evidence embracing a wide range of phonological processes in English and their interactions with morphology; this is far beyond the scope of the present paper. Let us point out, however, that unlike any other approach this one incorporates the double nature of English morphology: partly root-based and partly word-based.

The idea that skeletal slots may function independently of feature matrices, which underlies our analysis, is the basic assumption of the more recent version of Autosegmental Phonology. On the other hand, no other approach has been so successful in describing stress phenomena as Metrical Phonology.[9] This apparent paradox calls for some compromise between the two competing theories.

As a matter of fact, the theory which gains growing popularity, Three-Dimensional Phonology, is a combined autosegmental-metrical framework, with the predominance of the autosegmental model. The segmental slots of its skeletal tier perform simultaneously the role of the terminal elements of the metrical structure. The adequacy of such a framework is supported by the results of the present paper. We hope to have shown that the metrical analysis provides useful devices for an adequate account of stress, but a nonlinear model of language is simultaneously necessary.

The basic aim of this paper has been to account for the phenomenon known as Sonorant Destressing and to consider the questions which turn up in the analysis concerning the choice of the right descriptive formalism and the model of English phonology and morphology. Let me recapitulate the most important points which have emerged in the course of the preceding discussion.

1) There is no rule of Sonorant Destressing in English.
2) A shwa in a normally stressed position which does not alternate with ø or a full vowel in related words comes from an underlying empty V slot.
3) A shwa followed by a sonorant and alternating with ø in related words is an empty V node introduced by V insertion (8) at the beginning of phonological derivation.
4) A syllable with an empty V slot in the nucleus may not be stressed due to condition (9).
5) Nonlinear Phonology promises what appears to be the most adequate framework for the analysis of phonological processes.

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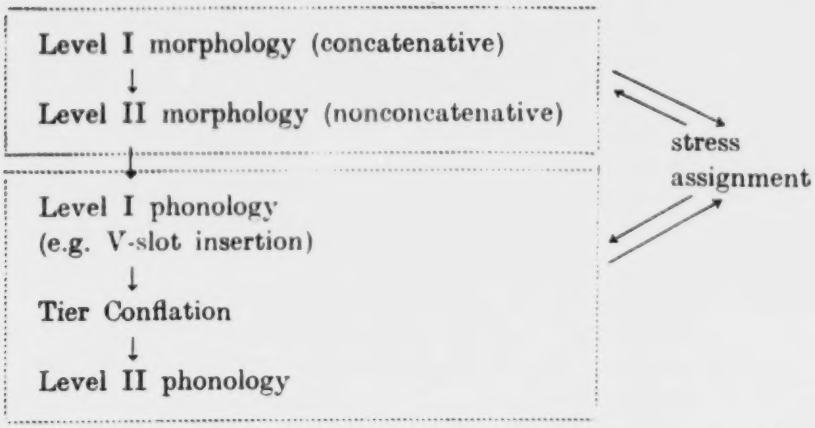
[9] See Griegerich (1985).

The following model of English morphology and phonology has been sketched out:



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PROSODIC FEATURES AND NARRATIVE STRATEGIES IN POLISH DISCOURSE

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1. Introduction

Studies of natural spoken discourse with respect to prosodic structure are still infrequent (Brown et al. (1980)), Crystal and Davy (1969), Brazil et al. (1980), Chafe (1984), Kumpf (1984)), and are mainly restricted to English. The broadening of the scope of studies to cover other languages is needed to provide cross-linguistic evidence for generalizations.

The existing analyses of the discourse — grammatical relations in narratives have been for the most part concerned with topic continuity features, tense — aspect morphology, rhetorical structures, the distinction between foreground and background, etc. Nonetheless, the relationship between narrative structure and prosody has remained relatively unexplored despite numerous allusions of various authors to its putative importance as shedding additional light on the oraganization of narratives.

In an attempt to partially fill this gap, the paper examines the interaction between narrative structure and prosodic structure. Specifically, we shall consider the correspondence between:

a) clauses and tone units
b) expository units and prosodic units
c) event line sequences and prosodic integration
d) individual prosodic features vs. foregrounding and backgrounding

The approach used here is basically an adaptation of the framework of prosodic organization presented in Crystal (1969); which is an exceptionally

exhaustive study based on natural language data. Although Crystal's work refers solely to English ,his general prosodic systems seem to hold true for Polish as well. Individual detailed differences for the purposes of this study are not significant.

2. Materials and Method

The Polish data consist of three oral narratives of the Pear Story film (c. f. Chafe 1980). The audiotapes were transcribed including repetitions and false starts and the prosodic analysis was conducted in basically three stages. First, tone unit boundaries were marked off including the specification of the placement and type of nuclear movement. Here, especially for Speaker C, we encountered some problems when trying to indetify the movement of pitch. The speaker at times lapsed into a "story-teller's delivery" mode which had its reflection on tonal movement in the form of a sequence of two different pitch levels realizing the nucleus rather than of the gliding manner of pitch change characterizing other speaker's performance and the majority of this informant's tone units. However, the different realization, deemed purely stylistic, if not idiosyncratic, was not marked separately. This stage of auditory analysis also included the notation of pitch level changes occurring in all the positions within the unit in the shape of boosters (step-ups ↑), high boosters (↑), and extra-high boosters (⇑), which were very rare in our data, as well as drops (step-downs ↓) and low drops (↓). Also marked were simple pitch-range variations.

Secondly, the placement of pauses was specified at a separate listening in order to make relative judgements more feasible. We found it necessary to identify four types of pauses in the data: the brief pause (·) felt as a very slight but still perceptible cessation in phonation (like a minor hesitation) not extending beyond 0.5 seconds; the double pause (··), roughly equivalent to two brief pauses (between 0.5 to 1.0 seocnds in duration and typically lasting for 0.7 to 0.8 seconds); the treble pause (···), corresponding to three brief pauses but not extending two-second spans. Any pause longer than the two seconds was marked as a long pause (····). It should be mentioned at this point that the measurements were not made systematically for all the pauses that occurred, but were arrived at through averaging ten measurements of each pause type. The pause marking was a reflection of comparative auditory decisions and thus may have been influenced by other factors affecting temporal organization such as individual speaker's overall tempo of delivery, the lengthening variations of immediately preceeding or following segments, and even the phonetic type of the segments themselves. Consequently, in absolute terms, the length of a given pause type might vary

slightly among different speakers and even for the same speaker. The decisive factor in marking pause types was their relative duration as judged against the background of individual speaker's style of delivery.

The third stage of analysis involved separate listening for other prosodic features such as simple and complex tempo, loudness variations, as well as for complex pitch-range variations. The glosses on the margins of the transcripts used for describing the effects in question, are discussed at length in Crystal (1969). Their scope of operation is signalled by inverted commas. In cases of overlap, the first gloss on the margin corresponds to the innermost commas in the transcript.

3. Clauses vs. tone units

Clauses, as understood here, are propositions containing predicates expressed in finite verb forms and their arguments. Infinitive and participial clauses, as well as nominalizations are not recognized as independent units of clausal organization.

The identified units include independent (main) and dependent (subordinate) clauses, where the latter term covers relative, adverbial, and complement clauses.

The basic unit in the prosodic organization of the narratives is taken to be the tone unit. Its recognition and delimitation rest on a number of criteria. Each unit will contain a pitch prominent syllable — the nucleus, manifested by kinetic pitch movement (static tones are very rare in our data), and the prominent syllable normally carries a considerable degree of stress together with the accompanying lengthening of the syllable. In fact, in a number of cases, especially related to rising type movement, the lengthening effect was more noticeable than the pitch movement itself. Following the nucleus is the tone unit boundary usually signalled with a step-up in pitch (if the nuclear syllable is falling) or a step-down (if the nucleus is of a rising type, i.e. a simple rise or a fall-rise), or either a step-up or a step-down for the few cases of level tones. A fairly reliable diagnostic of tone unit boundary proved to be the presence of a pause (see following discussion), although its occurrence was by no means a necessary and sufficient condition for tone unit demarcation.

It should be mentioned that tone unit boundaries for the examined narratives could be assigned with a good deal of confidence most of the time. Only less than 5% of the units had their boundaries reassigned on subsequent listenings.

The data analysed here show that in the majority of cases, tone units coincide with clause boundaries (76% of the time). The following is the break-

down for each of the speakers:

— for subject A the coincidence is 78% (120/153 units)
— for subject B the coincidence is 69% (93/135 units)
— for subject C the coincidence is 82% (55/67 units).

Cases of discrepancy where tone units are not coterminous with clauses are as follows:

a) more tone units to a clause than one

Speaker A	Speaker B	Speaker C
10% (16/153)	14% (19/135)	7% (5/67)

b) fewer tone units to a clause than one (a tone unit covers more than one clause)

Speaker A	Speaker B	Speaker C
11% (17/153)	17% (23/135)	10% (7/67)

Where two or more clauses are integrated into one tone unit, the usual alignment is main clause or subordinate clause plus subordinate clause. The combination of two or more main clauses in one unit is very rare and appears 5% (2/44 cases) of the time.

In a clause cluster, it is usually the final clause which receives tonic prominence (i.e. nuclear status). This happens in 82% of the cases and indicates that subordinate clauses are not always processed separately if one follows the hypothesis that the tone unit represents a cognitive reality in speech processing. We will return to this question below.

As for the size of the tone units, in terms of number of words, the average length of tone unit per speaker is 4.7 words as opposed to 6—9 words for English data as reported in Chafe (1984) and Pawley and Syder (1977). Speakers A, B, and C average 4.05, 5.07, and 4.88 words per intonation unit respectively. However, individual units vary greatly with respect to the number of lexical items used. The minimum is one word, and the maximum — 13, 15, and 20 words for speakers A, B, and C, respectively.

4. The status of subordinate clauses

Some authors have suggested that the use of subordinate clauses tends to be a phenomenon of written rather than of spoken language and that speakers tend instead to use coordinate or adjoined clauses because the complexity involved in processing subordinate clauses precludes their effective use in ongoing speech. That is, ongoing speech prefers to make use of short independent clauses and to show subordination through other means such as intonation, body gestures, etc. Granted the intuitive appeal of the claim, we still found that a substantial portion of the clauses (25%) were subordinate,

and that, moreover, these clauses tend to be prosodically integrated. The following shows the percentage of subordinate clauses found in each speaker's corpus:

Speaker A	Speaker B	Speaker C
27%	30%	19%
(32/136 clauses)	(40/133)	(13/69)

Most of the time, subordinate clauses do not form separate tone units. The following shows the number of subordinate clauses constituting separate tone units for each speaker:

Speaker A	Speaker B	Speaker C
43% of subs	8% of subs	31% of subs

As mentioned above, in the majority of cases subordinates do not form tone groups of their own but belong to a tone unit containing other clauses or parts of clauses. Exceptions, where a subordinate clause extends beyond one tone unit, were few. Subjects A, B, and C had 1, 6, and 0 subordinate clauses, respectively, that were longer than one tone unit. In other words, subordinates tend to be fully integrated prosodically into larger tonal structures, which seems to run counter to the supposition of Pawley and Syder, since the integration points to relative lack of disfluencies.

Out of the clauses that are integrated into a single tone unit with other clauses, 93% are subordinated ans 7% are coordinates. The individual distribution is:

Speaker A	Speaker B	Speaker C
90%	89%	100%

There is no significant difference in the distribution of types of subordinate clauses between those which form separate units and those that are prosodically integrated into larger units:

a) subordinate clauses forming separate units:

	Speaker A	Speaker B	Speaker C
Type of clause:			
relative	27% (10)	32% (13)	38% (5)
adverbial	21% (8)	27% (11)	15% (2)
complement	51% (19)	40% (16)	46% (6)

b) subordinate clauses integrated into larger units:

	Speaker A	Speaker B	Speaker C
relative	19% (3)	29% (7)	22% (2)
adverbial	6% (1)	33% (8)	22% (2)
complement	75% (12)	37% (9)	56% (5)

5. Characteristics of interclausal tone unit boundaries

In the cases where tone units do not coincide with separate clauses, we looked closer at the characteristics of such tone units, i.e. we were seeking to answer the question whether there was a consistent pattern of distribution between type of clause fragment (e.g. prepositional phrase, apposition) and type of nuclear tone that occurred.

The tone unit boundaries within clauses coincide with the following clausal elements: adverbial, participial, reintroduced subject, objects, apposition, relative and dislocation. We could observe that the preboundary tone is almost invariably rising in function (rising, falling-rising, level) for sentence modifying elements (adverbials, participials, reintroduced subjects, objects). In the cases of predicates preceding the boundary, the preboundary tonic may be either falling or rising. Out of seven cases of falling preboundary tone only two do not terminate with a fall in the next tone group belonging to the clause. Here the preboundary fall (cadential in nature) is followed by anticadence (a rise — pointing to continuation or incompletion). In the majority of cases, however, the preboundary rising — type tone has a cadential continuation in the nuclear movement of the immediately following tone group belonging to the same clause. Such an alignment of tones clearly points to an underlying integrative tendency supportive of the existence of Chafe's category of extended clauses (1984:18-20).

6. Pause distribution characteristics

The data examined here lead us to believe that the generalizations concerning the role of pauses in discourse have at times been too sweeping as some of the evidence from our narratives stands in apparent disagreement with a number of claims made in the literature (c. f. Pawley and Syder (1977), Chafe (1984)).

As far as inter-tone unit pauses are concerned, their distribution at the end of tone units is as follows:

Speaker	Ø pause	.	..	...	...
A	20%	29%	25%	17%	9%
B	9%	41%	29%	14%	6%
C	11%	39%	33%	17%	0%
Total average	13%	36%	29%	16%	5%

Moreover, pauses tend to co-occur with tone unit boundaries rather than with clause boundaries, which points to the separate cognitive status accorded

to the tone unit rather than the clause, if pauses are taken to directly reflect processing strategies (c. f. Chafe 1984:3). As a corollary to this, one may observe that if the end of the clause occurs inside the tone unit, the appearance of pauses is rare — 16%, and they are only brief.

Clause ends co-extensive with the end of tone units, are normally marked by a pause (84% of cases).
For detailed distribution of type of pauses occurring in this position see the chart below:

Pause type	No. of cases	Percentage
Ø	49	16%
.	101	32%
..	88	28%
...	54	17%
....	20	6%
Total	264	

As far as pauses before a subordinate clause within an intonation unit are concerned, out of sixty cases of subordinate clauses which are prosodically integrated with other clauses into a tone unit, only in six cases (10%) does a brief pause (.) appear. No pause whatsoever occurs in the remaining 90% of the cases. This concurs with the finding mentioned earlier, referring to the relative lack of disfluencies here.

Pause occurrence inside the clause is much more frequent than that in front of integrated subordinates:
Pauses in front of

adjectives	10%	(13 cases)
nouns	46%	(59 cases)
verbs	27%	(34 cases)
adverbs	17%	(21 cases)

Thus the total number of clauses internal pauses (127 instances) is smaller than the number of pauses found in between clauses (273 instances).

Pause distribution characteristics and tone unit division in the Polish narratives examined here stand in apparent disagreement with the supposition made by Pawley and Syder in relation to English discourse. They assume that "speakers attempting to integrate clauses (...) will show more disfluencies than speakers attempting to chain independent clauses one after another "(1977:47). In contrast to their findings, it is not unusual for Polish speakers to produce fluent units comprising two or more clauses within a single intonation unit. The occurrence of such units does, in Pawley and Syder's own words, provide "genuine counter-evidence to the hypothesis

of a one-clause-at-a-time constraint" since the units in the Polish data "consist of utterances significantly longer than a single clause, which are spoken rapidly, which are free of internal disfluencies, which are newly created by the speaker" (1977:35).

7. Event line sequences vs. prosodic integration

In order to examine the relationship between narrative event line sequences[1] and prosody, the narratives were delineated into event line vs. non-event line clause chains. The event line sequences were examined in order to ascertain the degree to which they might show a prosodic systematicity in distinction to the rest of the narrative. It was found that prosodically integrated event line sequences are just as frequent as unintegrated ones. The integrated sequence typically consists of a series of tone units with rising type nuclear movement terminating with a single falling tone unit.

The longest prosodically integrated event line sequence contains six rising nuclei followed by a falling tone in the final tone group of a series. This occurs when events appear in a listing manner and the last one in the series receives cadential interpretation. Examples of prosodically integrated event lines are given below:

Speaker A

zderzył się z ⁄panienką ·	
⁄wysypał ··	
szła · trójeczka ⁄ludzi ··	
rozdzielili się tymi ⁄gruszeczkami ·	
'znaczy pomogli mu zebrać te ‚gruchy' ···	'allegro'
i on ⁄odjechał ···	
i potem zostawił \'kapelusz' ·	'wide'
he bumped into the young lady	
scattered (them)	
there were three people coming	
they distributed the pears among themselves	
that is they helped him to pick up the pears	
and he rode away	
and then left his hat	

[1] An event, as defined here, constitutes narrative action expressed through dynamic or static verbs which is the speaker's way of presenting the story line (i.e. how the chain of events unfolds in a story). The speaker may express this event either directly in the main clause through a verb, e.g. "he+verb", or indirectly through a subordinate clause which is preceded with an introductory main clause, e.g. "we see that ..." or "the film shows that ...". This information excludes background, summary, opinion, description, comment, etc.

Speaker B

więc ⁄gwizdnął na na nich·
no i jeden chłopiec ⁄przybiegł·
dał im ⁄gruszki··
i z ↑ powrotem ⧹rozchodzą się·

so he whistled to them
so one of the boys came runing
gave them pears
and again they split

Speaker C

wywrócił się ⁄rower·
on też się ⁄'wywrócił'·· 'wide'
wszystkie gruszki się ⁄rozsypały··
z naprzeciwka nadchodzili · trzej /'chłopcy' ·· 'wide'
ee · podnieśli mu ⁄rower··
pomogli pozbierać gruszki do·⁄kosza···
i ·⧹poszli w swoją stronę·

the bicycle overturned
he also fell over
all the pears got scattered
there were three boys coming from opposite direction
uh they picked up the bicycle for him
helped to gather the pears into the b↕sket
and went their own way

The tonally non-integrated sequences, where falling and rising tonics intermingle, would show some integration if one took into account the pitch patterning in semantically related neighboring clauses. Below are examples of prosodically non-integrated event line chains:

'zauważył że ma za mało ⧹gruszek' 'allegro'
i nagle ⁄patrzy···
'że · idą ludzie i jedzą ⧹gruszki'·· 'allegro'
no i główkował co się ⧹stało·

noticed that he had too few pears
and suddenly he looks
and sees people coming and eating pears
and he was wondering what happened

i ↑ schodzi ⁄na dół·
i ·· już ma zamiar wsypać ˅gruszki·
ale patrzy że zamiast ⁀trzech koszyków
są tylko ⇑ ⁀'dwa'·· 'wide'

and he comes down
and is about to pour the pears
but sees that instead of three baskets
there are only two

8. Prosodically integrated vs. non-integrated expository units

An integrated unit, as mentioned previously, is taken to be a series of rising or rising-type tonics terminating with a falling tone. The distribution of prosodically integrated expository units for each speaker is a follows:

Speaker A	26%	of expository units	(6/23)
Speaker B	21%	,,	(4/19)
Speaker C	88%	,,	(7/8)

Interestingly enough, most expository units are marked off by pauses:

Speaker A	48% units have long pauses (··· or ····)
	39% units have short pauses (· or ··)
Speaker B	58% units have long pauses
	42% units have short pauses
Speaker C	50% units have long pauses
	38% units have short pauses

The total number of pauses located at the end of expository units are thus 87%, 100%, and 88% for speakers A, B, and C respectively.

Out of the non-integrated expository units, some showed a considerable degree of integration when broken into subunits. Subunits are parts of expository units bearing a cohesive semantic relation at a lower level. A unit is thus viewed as a hyper-theme, i.e. centered around one idea, person, object, or scene etc., while subunits are those units which obtain after further subdividing the largre units (expository units) into chunks with separate individual semantic cohesion. These subunits can further be broken into smaller stretches which are parallel to idea units. An analogy can be drawn here between paragraphs, sentences, and clauses in writing. and expository units, subunits, and tone units in speech, This an average of 37% subunits displayed integration in terms of sequences of rising tones terminating with a fall, Speakers A, B, and C, showed, respectively, 24%, 39%, and 50% prosodically integrated subunits.

Out of the subunits and units still unaccounted for in terms of the "rising—falling" integration pattern, some may be shown to also exhibit a pattern of integration when one disregards the presence of extra falling tones in the final position of expository units and subunits. This fall is a result of the speaker's appending an afterthought or a summarizing comment or elaborating remark at the end of the unit. Such a cadential comment may typically be accompanied by such prosodic devices as the use of monotone, narrow range and piano articulation:

i i·akcja·teraz·pokazuje jak·· ↑ ten ˇwieśniak
który zrywał ⁄gruszki··
ma zamiar·zejść na ⁄dół/·
żeby napełnić ↑ \koszyk·
'bo już jego fartuch jest ^'pełny' 'piano' 'narrow'

and and the action now shows how this peasant
who was picking pears
is about to climb down
in order to fill the basekt
because his apron is already full

The inclusion of these cases increases the percentage of the integrated units and subunits which for each of the speakers is now as follows:

Speaker A 41% (13/32)
Speaker B 69% (22/32)
Speaker C 89% (8/9)

Speakers may be observed to vary in the way they employ the rise —fall integrating device. In addition to the use of the rising — falling pattern, they take recourse to other integrative prosodic devices like complex pitch range and tempo variation:

w ciągu·całego ¯filmu··
↑ dwa \razy··· 'descending'
wchodził na górę·i \schodził··

during the whold film
two times
(he) climbed up and down

↓ jeden był ⁄pełen·
drugi był ⁄prawie pełen· 'descending'
i jeden ↓ \pusty· 'rallentando'

one was full
the second was almost full
and one (was) empty

9. Prosodic features and presentation of information

Occasionally speakers resort to other prosodic features for signalling special effects. The prosodic devices appear to have two basic functions: attenuation and highlighting. For attenuation they tend to employ the features of monotone, low and narrow range, allegro, accellerando, and diminuendo articulation. Highlighting effect, on the other hand, may be achieved through the use of wide pitch range, lento and forte articulation.

Attenuation normally accompanies the following type of rhetorical effects: elaboration, repetition, explanation, recapitulation, and recalled action, whereas highlighting may mark juxtaposition or contrast, as in the case of allegro vs. lento articulation, for instance, used side by side. It should be stressed that the speakers do not employ these devices in a consistent manner, that is, there is no way of predicting that a given rhetorical effect will of necessity be marked with a certain prosodic device. Occasionally, for instance, a feature from either category (attenuation or highlighting) may be used for conveying an exactly opposite effect (e.g. allegro appears for both repetition and foregrounding twice in A's narartive).

In several instances we could observe in each narrative an interesting relationship between tone units which were immediately in sequence and where one of the units was, in a sense, prosodically dependent on the other. This dependence takes the form of tonal subordination and refers to the relationship of pitch movement within consecutive tone units, where the pitch pattern of the subordinate unit repeats the direction of the nuclear glide of the superordinate unit, and whose overall pitch range falls within the range of the latter. Thus, the width of the nuclear glide of the superordinate unit must be greater than that in the subordinate unit which may either precede (preposed subordination) or follow it (postposed subordination).[3]

We could only find instances of simple subordination in our data (one subordinate and one superordinate unit side by side). Consequently, only neighbouring tone units in pairs exhibited subordinate relationship. As far as the function of prosodic subordination in narrative structure is concerned, we found it difficult to point to features in the text that would cooccur with it in a systematic manner. The only clearer type of correspondence that emerged concerned speakers' use of subordination for presenting material as less relevant for the narrated events (background elaboration).

The relation of grammatical subordination to prosodic subordination is not consistent either. Rather, it is the speaker's choice to present the main or

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[3] For an extended discussion of tonal subordination see Crystal 1969:chap. 5.

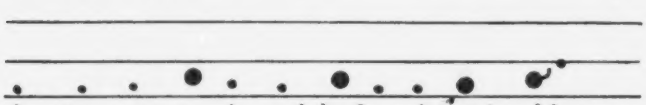
subordinate clause as more or less relevant to the chain of events presented in the discourse and mark it accordingly by prosodic means which matters.

Below are examples of preposed subordination where the main clause is prosodically subordinate:

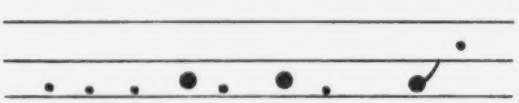
i ··· chłcpiec · ee · jak się ˇmijają ·

odwraca ˇgłowę · 'subordinate'

and the boy when they are passing
turns his head



i w tym momencie nadchodzą ci trzej ˏchłopcy ·· 'subordinate'



których ten malec spotkał po ˏdrodze ··

and at this moment there come the three boys
who the small boy met on his way

10. Conclusion

The breaking of narratives into tone units reveals that the organization of narratives has a bearing on prosodic structure which, in turn, may shed additional light on the cognitive status of the structural units into which narratives are analysed. Thus, we have observed that clause units are equivalent to intonation units in the majority of cases while pause distribution characteristics provide evidence for the psychological reality of the tone unit rather than the clause. Furthemore, it appears that subordinate clauses can form separate tone units; they usually, however, form part of a larger intonation unit.

Event line sequences, as such, do not show prosodic integration, although expository units which are organized around one idea do provide prosodic evidence for their status as separate units. Prosodically reflected was also the difference between foreground and background presentation which made systematic

use of highlighting and attenuation devices. Prosodic subordination, however, has not been found to correlate with grammatical subordination in any significant way.

Given the specific nature of the narratives studied and the limited corpus of material, our observations require further corroboration from a more varied and a larger body of data.

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A PARAMETER OF SYLLABIFICATION*

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0. Introduction

In the literature concerning the syllable (e.g., Kahn 1976), essentially one principle of assignment of syllable structure has been advanced: an algorithm which links elements to syllabic nodes in the following order:

a. every vowel;
b. a maximal number of consonants preceding every vowel; these consonants must form a permissible word-initial cluster;
c. a maximal number of consonants following the vowel; these consonants must form a permissible word-final cluster.

Although there exists, according to this principle, a well-defined order of application within the syllable, nothing is said about the way the algorithm applies to a larger order of segments (e.g. a prosodic unit). Apparently, all the vowels are linked first, then the consonants which are going to form the onsets, and finally the codas. Thus, within a prosodic group which constitutes a domain for syllabification, all syllables are assigned simultaneously. This is why we wish to call this type of syllabification *non-directional*.

However, Kaye and Lowenstamm (1981:306-11) propose another principle: according to them, syllabification is *directional* and can take place from left to right in some languages, and from right to left in others. The principle of

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syllabification which they advance is given (1) and (2) (1981:307-9):

(1) The Rightward Strategy

Scanning a word from left to right, make the first syllable as unmarked as possible. If the resulting syllable on the right conforms to the formal and substantive constraints of the language, then there is a syllable boundary at that point. If the resulting right syllable violates a constraint, move the syllable boundary over one segment to the right and try again. Repeat until the resulting right syllable is licit. After the first syllable boundary has been found, repeat the process for each successive syllable until the end of the string is reached.

(2) The Leftward Strategy

Scanning a word from right to left, make the last syllable as unmarked as possible. If the resulting syllable on the left conforms to the formal and substantive constraints of the language, then there is a syllable boundary at the point. If the resulting left syllable violates a constraint, move the syllable boundary over one segment to the left and try again. Repeat until the resulting left syllable is licit. After the first syllable boundary has been found, repeat the process for each successive syllable until the beginning of the string is reached.

We refer the reader to Kaye and Lowenstamm (1981) for an explanation of their concept of markedness. It will suffice here to mention the concrete examples mentioned by the authors as motivation for their theory. As a language using the Rightward Strategy they mention English of which they give the following examples:

(3) a. command kə-mænd
b. canteen kæn-tiyn
c. astute a-stuwt

Although in English the segments or clusters of segments *m*, *nt*, *st* are permissible word-finally, the syllable boundaries are not located after these segments or clusters of segments but at the first possible place (going from left to right) (provided it is possible to syllabify the whole word, which is the reason that in (3b), the syllable boundary is placed after the *n*). In (3b, c) the syllable-initial position of the dental plosives can be proved by the fact that they are aspirated.

As a language which uses the Leftward Strategy Kay and Lowenstamm mention Polish. Speakers of Polish generally agree that the syllabification of words like *wyspa* 'island', *ospa* 'smallpox', *tykwa* 'pumpkin', *stacja* 'station' is as in (4):

(4) wys-pa os-pa tyk-wa stac-ja

This syllabification can be explained if the Leftward Strategy (2) is adopted. The Rightward Strategy (1) would give rise to syllabifications like **wy-spa*, **ty-kwa*, etc.

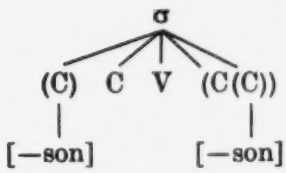
Independently of the proposals by Kaye and Lowenstamm, Ter Mors (1982) proposes a directional syllabification for Klamath, a Penutian language of Oregon. What is interesting here is that the direction of syllabification can be demonstrated in terms of epenthesis site.

In Klamath, an epenthesis process applies in order to resolve unsyllabifiable consonant clusters. Consider the underlying form in (5):

(5) /snogwk/

In this form, the sequence *gwk* is not a permissible word-final cluster. The syllable template of Klamath is given in (6):

(6) syllable template for Klamath



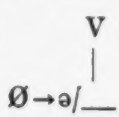
In order to make the sequence syllabifiable ,there are two conceivable epenthesis sites: between *g* and *w*, and between *w* et *k*. In fact the process of epenthesis insert the schwa between *g* and *w*, creating the form *snogəwk*. After having undergone an independently motivated vocalisation process, which changes *əw* to *o*: the form surfaces as (7):

(7) [snogo:k]

The form in (8), which would result if epenthesis were to take place between *w* et *k*, is ungrammatical.

(8) *[snogwək]

As in many analyses concerning epenthesis, Ter Mors conceives of this process as the creation of a V on the level of the skeleton. This empty V is then filled up with the neutral vowel by a rule (or, according to the proposals of Archangeli (1984), by a *complement* rule):

(9)


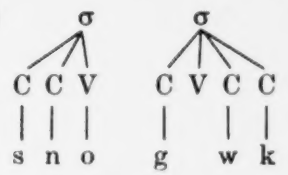
The V on the skeletal level is assumed to have been inserted by the process of syllabification proper. It is thus that the relationship between epenthesis

and syllabic structure is established (recall that epenthesis functions in order to resolve otherwise unsyllabifiable sequences). The following syllabification mechanism is proposed by Ter Mors (1985:316):

(10) *Rule of ASSOCIATION*: Map in a Rh [=right-to-left, RN fashin the syllable template onto the segmental trier; maximize clusters.

Because of the directionality, the following structure is created for /snogwk/:

(11)



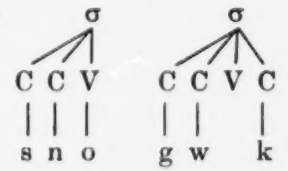
First, C C | and | are syllabified. Then the syllabification mechanism expects k w

a V. Because of the fact that the element which it then encounters is not a V, a V is inserted:

(12)

If one were to apply the well-known Maximal Onset Principle (incorporated in the proposal by Kahn), one would derive erroneously:[1]

(13)



which, after application of (9) would produce the ungrammatical form in (8). We would get the same result if we were to adopt a left-to-right syllabification. Having outlined the essence of the proposal by Ter Mors, we will now show that the principle of directional syllabification accounts for certain processes in Yawelmani. We will see that the principle of directional syllabification re-

[1] In fact, this is not completely true. Strictly speaking, the maximal onset principle would fail to syllabify the second syllable altogether: in order to make an onset maximal it should be able to refer to the nucleus. Since there is no V to perform this function, the process of syllabification would be blocked.

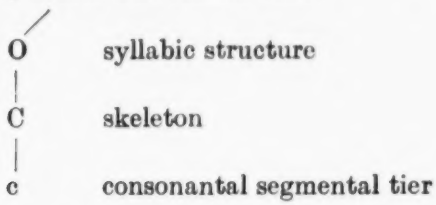
ceives additional motivation because it explains certain syllabic processes other than epenthesis. Then, applying the principle to a third language, Tigrinya, we will see that the direction of syllabification is parametrised.

1. The syllabic processes in Yawelmani

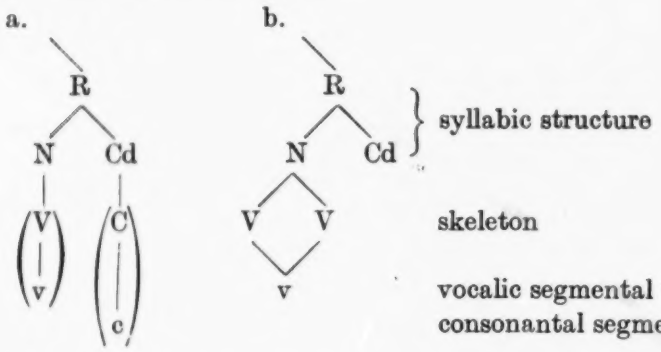
Yawelmani, also a Penutian language (but not particularly closely related to Klamath), spoken in South Central California, has attracted a lot of attention from linguists. We mention here only the theses of Kuroda (1967), Kisseberth (1969) and Archangeli (1984). The main source is Newman (1944). Several processes affecting syllable structure take place in this language. The analysis we present here can be found in a more extended form in Noske (1985).

Yawelmani has three types of syllable: CV, CVC and CV: (CV_1V_1). Like Klamath, Yawelmani has an epenthesis process which serves to "repair" the syllabic structure. This is why we propose that in a certain phase of the derivation the nucleus[2] can be empty, into which vowels will be epenthesised at a later stage. These are the well-formedness conditions for the onset and the rhyme in Yawelmani:

(14) possible Yawelmani onset



(15) possible Yawelmani rhymes



[2] We assume here the well-known *onset-rhyme* bipartition, with the rhyme being subdivided into *nucleus-coda*, for reasons that are outside the scope of this article, but which are given in Noske (1985).

In (15b) the coda is present, but obligatorily empty. The reasons for this do not concern us here, but are given in Noske (1985).

We purpose the following syllabification principles for Yawelmani (cf. Noske 1985:347):

16) Syllabification principles for Yawelmani
syllable structures are mapped onto the skeleton
a. from right to left
b. in such a way that the number of empty syllabic nodes is minimised.

There are three reasons for the directionality. The first two concern the rules of Shortening and Elision postulated for Yawelmani by Kuroda (1967) and Kisserbeth (1969):

(17) Shortening: $V \rightarrow [-\text{long}] / __ C \begin{cases} \# \\ C \end{cases}$

(18) Elision: $V \rightarrow \emptyset / __ V$

The functioning of Shortening can be seen in (19):

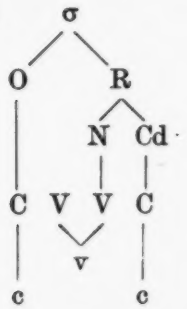
(19) /taxaa+t/ [taxat]
taxaa-, 'bring'; *-t*, passive aorist

The functioning of Elision can be seen in (20):

(20) /lagaa+in+hin/ [laginhin] *lagaa-* 'spend the night'; *-in-*, mediopassive, *-hn*, aorist

Applying the syllabic well-formedness conditions given in (10, 11) as well as the syllabification principles in (16), one obtains the syllabic structure in (21):

(21)

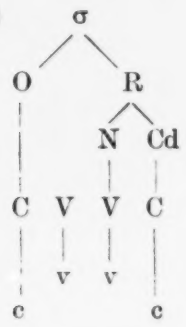


We now see that the process of shortening follows automatically from the retrograde character of syllabification: the mechanism will try to syllabify according to the templates in (15a, b). Because of the fact that it encounters a C, it will select (15a). Then, (continuing to go from right to left) it encounters the rightmost V, and links this to the nucleus node. Now a second V is en-

countered. Because of the fact that (15a) allows only one V to be linked to the syllabic structure, this V is then skipped and is therefore not realised, since we assume that in order to be pronounced an element on the CV-tier has to be linked to the syllabic structure.

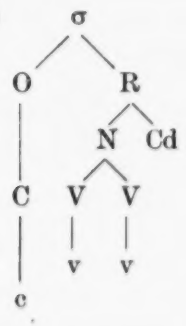
We obtain a similar result to that in (21) with vowel elision in the case of a closed syllable. Cf. (22):

(22)



In (22), the retrograde syllabification links only the rightmost V to the syllabic structure, thus the V to its left is not realised, which is the correct result. For an open syllable, it is the requirement that the two contiguous V's be linked to a single element on the vocalic segmental tier that rules out the form in (23):

(23)



We thus see that two processes in Yawelmani which up till now have had to be explictly stated in terms of rules, follow from the assumption of a directional syllabification mechanism. We now come to a third reason for the directionality. Consider the following two rules, proposed by Kuroda (1967) and Kisseberth (1969):

(24) Epenthesis:

$$\emptyset \rightarrow i \,/__ C \begin{Bmatrix} \# \\ C \end{Bmatrix}$$

(25) Two Sided Open Syllable Deletion (Kuroda 1967:32):

$$\begin{matrix} V \\ [-\text{long}] \end{matrix} \rightarrow \emptyset / VC__CV$$

The derivations in (26) illustrate the functioninf og these two rules:

(26) *paʔṭ-*, 'fight'; *-hn*, aorist; *-t*, passive aorist

a.		b.	
paʔṭ+hn		paʔṭ+t	Underlying Representation
paʔiṭi+hin		paʔiṭ+it	Epentiesis (24)
paʔiṭ+hin		paʔit+t	Two Sided Open Syllable Deletion (25)
paʔithin		paʔṭit	Surface Representation

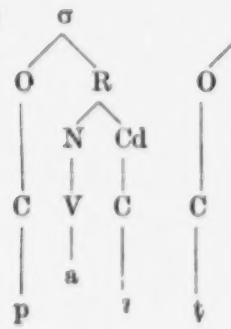
Instead of Epenthesis (24) we propose the following rule, which fills an empty node with the neutral vowel (which is *i* in Yawelmani):

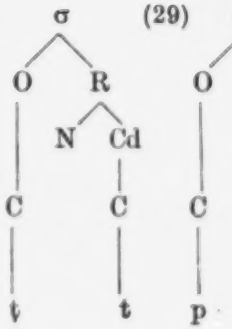
(27) Epenthesis:

$$\emptyset \rightarrow \begin{matrix} V \\ | \\ i \end{matrix} / \begin{matrix} N \\ | \\ __ \end{matrix}$$

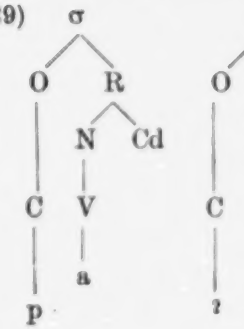
This rule differs from rule (9) only in that it refers to an empty syllabic node (nucleus), instead of an empty V. Let us now look at the structures that will be generated by our syllabification principles in (16) for the structure in (26):

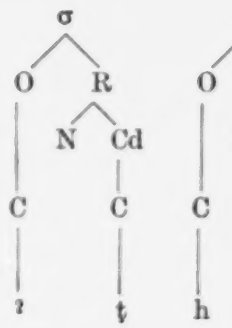
(28)

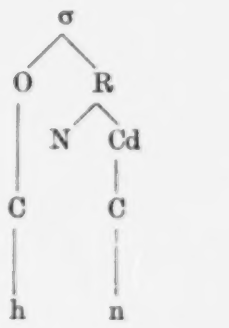




(29)





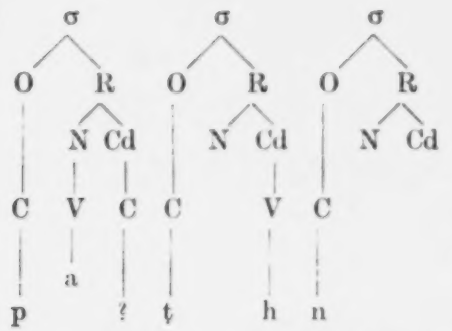


We see that the empty nodes are precisely in those places where we find an epenthetic vowel on the surface. We now see that we are able to posit a more general rule for the epenthesis process than in (24). Because our rule refers to syllable structure, it is endowed with explanatory power: it explains the fact that epenthesis takes place only in those cases where it is necessary to "repair" the syllabic structure. Note also that we do not need the Two Sided Open Sylla-

ble Deletion (25) here. It would indeed be strange that a vowel should be inserted first, only to be deleted later, as in the derivations in (26).[3]

If one assumes a syllabification from left to right, one would derive the structure in (30), which would give rise to the ungrammatical phonetic form in (31):

(30)



(31) *[paʔṭihni]

We thus see that the right-to-left directionality can account for three processes in Yawelmani. It is useful to mention a fourth reason here, of a more theoretical nature, which argues in favour of a retrograde syllabification. Consider what would happen if syllabification were to take place from left to right. If the mechanism encountered a postvocalic $\overset{C}{|}_{c}$, it would not be able to decide to which syllabic node this element were to be linked. For this, it would have to know whether the following element were a $\overset{C}{|}_{c}$, or a $\overset{V}{|}_{v}$. In the same case, the $\overset{C}{|}_{c}$ would have to be assigned to the coda (of the former syllable), in the latter case to the onset (of the next syllable). This amounts to saying that we would have to be able to look ahead, which would entail a partial bidirectionality. This would make the mechanism unnecessarily powerfull: a right-to-left application does not produce this kind of problem, at least not for CVC languages in which the onset is obligatorily filled. In order to see this consider what would happen if (going from right to left) the mechanism were to encounter a C after having linked the node of nucleus to a V. Because of the fact that the onset is obligatorily filled, it would always assign onset status to this C. There is thus

[3] Apart from cases like (26), the only motivation adduced for the rule of "Two Sided Open Syllable Deletion" (27) is constituted by the baheviour of the mediopassive morpheme *—in—*. However, as pointed out in Noske (1985 : 359), the deletion of *i* which can occur in this morphene is the result of the analogical reanalysis of the verb stem followed by *—in—* as a monomorphemic verb stem (the so-called "fake base" (Newman 1944:75)). The *i* then alternates with zero, because it is reanalysed as an epenthetic vowel.

no need to "know" the nature of the element on the CV-tier (i.e., a C or a V) that is to the left of the C in question. By assuming right-to-left directionality, the mechanism can be kept as simple as possible.[4]

We can now raise the question whether right-to-left directionality is universal, or, to put the same question less strongly, whether this directionality is universal for CVC languages (i.e., a language in which the maximal syllable is CVC). This could be tested by investigating which stie is is selected for the insertion of an epenthetic vowel in order to "repair" syllabic structure, like the one in (24). This boils down to asking the question in (32):

(32) Is the environment $__C\begin{cases}\#\\C\end{cases}$ universal in syllable repair in CVC languages?

We will see in section 2 that the answer to this question is negative. To see this, we will examine the process of Epenthesis in Tigrinya.

2. The syllabic processes in Tigrinya

Tigrinya, a South Semitic language of northern Ethiopia, possesses an epenthesis process which can operate word-internally as well as word-finally. Pam (1973) mentions two different rules, which he later combines. The first rule is given in (33) (1973 : 116):

(33) Ø → i / CC__(C)#

The functioning of this rule can be seen in (34) (1973:114):

(34) a. /kalb+n/ [kʌbin] "dog"+suffixed conjunction
b. /kalb/ [kʌlbi:] "dog"

In (34b) the i has been lengthened by a lengthening rule given in (35) (1973 : 115):

(35) i → i: / __#

[4] We are indebted to Professor Werner Winter for indicating to us that an earlier version of our text was unclear on this point. If a CVC language allows empty onsets, but does not allow syllabifications of the type CVC$VC (where $=syllable boundary), a syllabification excluded by its high degree of markedness in terms of Kaye & Lowenstamm's proposals (whatever the direction of syllabification), we can make our prediction more general and posit that left-to-right syllabification is the marked setting for CVC languages in general. As the reader will have noted, the suggestions made by Kaye and Lowenstamm also imply a partial bidirectionality. However, we think that a language tends to choose the direction of syllabification which implies the fewest complications, other things being equal, and that therefore a CVC language would tend to select the right-to-left syllabification.

The second epenthesis rule is given in (36) (1973:111):

(36) Ø → i / #C__C

An example of the functioning of this rule can be seen in (37):

(37) /sbar/ [sibar] 'break'

Pam combines these two rules as in (38) (1973:117):

(38) Ø → i / [−syll] [−syll]__[−syll]

Pam thus has to resort to the expression [−*syll*], i.e. he has to treat word boundaries on a par with consonants. He thus has to specify these elements negatively with regard to their syllabicity. This is not very satisfying for in fact word boundaries and consonants have very little in common. This is the reason why phonologists have stopped referring to word boundaries as [−*syll*]. One can now ask the question whether in Tigrinya, as in Yawelmani, the epenthesis process can be analysed as the result of the process of syllabification. For this, it is necessary to know what the maximal syllable in Tigrinya is, and whether epenethesis takes place only if the process of syllabification is confronted with an otherwise unsyllabifiable sequence.

The answers to both questions are straightforward: the syllable structure of Tigrinya is CV (V) (C), the maximal syllable being thus CVVC, and Epenthesis operates only in those structures where otherwise a more complex consonantal syllabic structure than CVVC would ensue.

We can now see that the rules in (33) and (36) can be dispensed with if we assume a *left-to-right* syllabification, in the same way as the right-to-left syllabification in Yawelmani we proposed above: if a C is encountered by the syllabification mechanism at a place where it only expects a V, a V is projected, and later filled by the neutral vowel (in the case of Tigrinya *an i*). If we adopt such an analysis, we can express the process in a unitary way, without having to resort to references to [*-syll*]. The only difference from the Yawelmani case is that the directionality of syllabification is reversed, and that the quality of the epenthetic vowel is slightly different (*i* instead of *i*). It can thus be stated that the parameter of the directionality of syllabification is set differently for Tigrinya and Yawelmani.

Not only does the epenthesis process provide motivation for the directionality of the syllabification process, but this is also the case with a process of vowel deletion, operating in an opposite fashion to Yawelmani. Thus is formulated by Pam (1973:76) as in (39).

(39) Vowel Elision (Pam 1973:76):

$$V \rightarrow \emptyset \; \underset{[+long]—}{V}$$

The structural description of this rule is the mirror image of that of rule (18), formulated by Kisseberth for vowel elision in Yawelmani, except in its requirement that the vowel be long, which follows from the fact that Tigrinya allows two V's in a closed syllable (the two V's represent a long vowel or a diphthong). An example of the application of rule (39) is given in (40) (Pam 1973:77).

(40)	Base	r i?s	
	a+—prefixation	a+	
	Infixation	a:	
	Vowel Elision	Ø	
	Output	a+ra:?s	'heads'

This form surfaces as [*ara* : *?is*]. (The place where the epenthesis takes place seems to contradict rule (33), as well as our reanalysis of it. However, Pam (1973:117-8) points out that the epentheiss site is exceptional and is restricted to the class of words to which the form in (50) belongs, thus there seems to be a morphological conditioning here).

We will now make a final point. As was mentioned in section 1, given a directionality in the syllabification mechanism, one would expect it to be right-to-left rather than left-to-right because of the fact that in the latter case the mechanism would have to look ahead. The right-to-left directionality would thus constitute the unmarked case. This seems indeed to be confirmed by the facts. There are many CVC languages where $__C\begin{Bmatrix}\#\\C\end{Bmatrix}$ is the environment for syllable repair. A situation such as the one in Tigrinya, however, where the environment for syllable repair could be formulated as $\begin{matrix}\#\\C\end{matrix}\Big\}C__$, seems to be very rare, and must be assumed to be the marked case. This conjecture is confirmed if we look at the situation in languages closely related to Tigrinya, e.g., Tigre. In Tigre, the equivalent of (34b) is as in (4):

(41) [kʌlib]

This form is also found in other related languages. Hence it must be concluded that in Tigre, syllabification takes place from right to left, the unmarked direction, and that Tigrinya is exceptional in its left-to-right syllabification.

3. Conclusion

We have shown that the principle of directional syllabification proposed by Ter Mors (1982) in order to explain the process of epenthesis in Klamath, as well as by Kay and Lowenstamm (1982) in order to account for the difference in the distribution of syllable boundaries between English and Polish,

receives additional motivation from the syllabic processes in Yawelmani such as epenthesis and vowel elision. It was shown that in Tigrinya too, syllabification must be assumed to take place directionally, but that in this language it applies from left to right, in contrast to Klamath and Yawelmani. The implicit conclusion in Kaye and Lowenstamm, i.e. that the *direction* of syllabification is a *parameter*, is thus shown to be correct. It is plausible that the *left-to-right* syllabification is the marked setting of the directionality parameter for CVC languages with a obligatorily filled onset.

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REMARKS ON VOICING PHENOMENA: WITH SPECIAL REFERENCE TO ENGLISH AND POLISH

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The present paper concerns itself with selected aspects of voicing phenomena in English and Polish viewed as:

(1) changes of voiced segments to voiceless segments, and
(2) changes of voiceless segments to voiced ones.

Of the two kinds of changes, more attention will be paid to the processes in (1). Also, since different classes of segments can undergo the processes in (1) or (2) to a different degree, my attention will be focussed primarily on the class of obstruents, though other classes of segments will also be occasionally referred to.

In the literature of the subject one can come across discussions of various aspects of the voicing phenomena. The following is a partial list:

(3) The degree to which segments are voiced, i.e. fully voiced, partially voiced versus completely voiceless segments (many references, both structuralist and generative, for instance, Jones 1956 (and earlier editions), 1975 (and earlier editions), Gimson 1962 and Rubach 1975).
(4) Identification of the individual segments and classes of segments which undergo the processes of voicing and devoicing as well as the description of the environments in which these processes operate (numerous sources, but see especially Dinnsen and Eckman 1978 and the works cited therein).
(5) Connected with (4) is the issue of how general a given voicing or devoicing process is and how it is to be placed in the grammar of a language. This question was raised in Chomsky and Halle (1968) and has reappeared ever since (cf., for instance, Selkirk 1972, Rubach

1975, Hooper 1975, Aronoff 1976, Ruszkiewicz 1983, Halle and Mohanan 1985).

(6) The question of choosing the most plausible feature(s) by which to describe the processes under discussion. It is noteworthy that in the period following the publication of Kim (1965) the overwhelming majority of linguists decided on the feature [voice], rather than [tense], to adequately describe voicing phenomena in various languages.

(7) The direction in which the feature [voice] spreads. Since the majority of voicing phenomena have been viewed as processes of assimilation, it is not surprising that many authors talk of progressive and regressive assimilation of voice (cf., for instance, Abercrombie 1967, chapters 5 and 8, and Rubach 1975).

(8) The interaction of the processes of voicing and devoicing with other processes, and

(9) the formulation of the rules of voicing and devoicing as either rewrite rules or *if-then* constraints (see the interesting discussion in Rubach 1977).

In the present paper I wish to concentrate on two of the above-mentioned problem areas, i.e. the role of the features [voice] and [tense], and the place of the rules of voicing and devoicing (or whatever they are called) in the grammars of Eglish and Polish.

Structural phoneticians like Jones (1956, 1975) and Abercrombie (1967), but not Gimson (1962), described voicing phenomena in terms of similitude and assimilation. The two terms are defined in Jones (1975:217, § 836, and 219, § 841a) in the following way:

(10) *Similitude*: the subsidiary sound B belonging to the phoneme whose principal member is the sound A is used when the sound C is adjacent to it or near to it.

(11) a. *Ordinary assimilation*: the sound A is replaced by the sound B under the influence of the sound C.

b. *Coalescent assimilation*: the sounds A and C influence each other and coalesce into the single sound B.

Jones emphasized the need for keeping similitude and assimilation apart. In Jones (1975:219, § 842) he claimed that "it would not be accurate to say that the use of a partially breathed *l* in *please* is a case of 'assimilation'. Such a statement would imply that the *l* of *please* had at one time been fully voiced and had subsequently lost part of its voice owing to the presence of the *p*; there is, on the contrary, every reason to believe that the *l* in this word has had its present value ever since the word first appeared in the language".

Abercrombie (1967:87, *passim*) follows Jones' distinction between simili-

tude and assimilation. He refers to (juxtapositional) assimilation as *changes* in pronunciation (133) and observes that the use of the word 'change' "seems to attribute priority to one of the forms concerned" (Abercrombie 1967: 175, note 2). He fails to explain clearly the distinction between what he calls complete versus partial regressive assimilation of voicelessness. For instance, on p. 137 he calls the devoicing of [v] in the phrases *of course* and *have to* complete, but the devoicing of [z] in the phrase *his son* partial. It is only by reference to Abercrombie's transcriptions of the sounds that the reader arrives at the exact nature of a completely voiceless [v] and a partially voiceless [z].

Abercrombie (1967:138) considers the devoicing of segments in utterance-final position to be a case of assimilation, with silence being the assimilating factor. Within the Jones-Abercrombie approach this statement is as problematic as Jones' above-mentioned statement concerning the nature of *l* in *please*. That is, claiming that the two final consonants in *fields*, *sands* and *graves* (Abercrombie's 1967:138 examples) get assimilated to silence involves the assumption that the consonants in question are basically voiced. But if this is a plausible solution to the problem, then one can also assume that the *l* in *please* is voiced at some level of abstraction and gets devoiced by assimilation to the preceding tautosyllabic [p].

It is obvious that the latter question does not arise in generative phonology. The generative phonologist has at his disposal an abstract level of underlying representation at which all segments are specifies as [+voice] or [−voice]. By applying rules of the appropriate kind to underlying representations derived representations are formed which contain all the necessary phonetic details, including information as to the degree of voicedness or voicelessness.

The problem of priority of linguistic forms mentioned by Abercrombie does not arise, either. The underlying representation of a string has priority, in Abercrombie's sense, over all other representations, whether intermediate or derived.

Some other questions remain unresolved. Take, for instance, Abercrombie's description of the devoicing of [v] and [z] referred to above. The description is extremely vague because it has been carried out in terms of the feature [voice] alone. Working within the generative framework, Rubach (1975) considers the choice of features to account for low phonetic voice assimilation with Polish and English obstruents and makes the following claims (pp. 125 and 131, respectively):

(12) a. The mere fact that voicing or unvoicing of obstruents must be determinate suggests the importance of the feature [voice] for distinctions among obstruents. In some contexts, however, these distinctions may be obliterated completely (as in Polish) or partially (as in English).

b. It seems best to accept the view that at least for English and Polish [voice] and [tense] are concomitant features. For phonological and the majority of phonetic analyses [voice] provides sufficient distinction. It is only very rarely that these two features are separated (cf. rule (8)[9] [=rule (13) below, P. R.] and some Polish examples below, then [−tense] appears in the left side specification). In other cases in this paper whenever we state that an obstruent has been unvoiced (the whole segment, i.e. solid line in our notation) we always understand that the change from [+tense] to [−tense] (*sic*) has also taken place.

Rubach's (1975:131) rule (8) referred to in (12b) is reproduced for the reader's convenience as (13) below:

$$(13)\ \begin{bmatrix}+\text{obstr}\\-\text{tense}\end{bmatrix} \rightarrow [-\text{voice}] / \begin{bmatrix}+\text{obstr}\\+\text{voice}\end{bmatrix} __ \begin{Bmatrix}\#\ \#\\ \#\ [-\text{voice}]\end{Bmatrix}$$

A few remarks szggest themselves in connection with Rubach's statements in (12a, b) and the rule in (13). Although his decision to describe the voicing phenomena in Polish and English obstruents in terms of the feature [voice] runs counter to Gimson's attempts to apply two independent features, *fortis* and *lenis*, his approach is in perfect agreement with the practice of formulating obstruent voicing and devoicing rules current among the generative phonologists, see, for instance, Chomsky and Halle (1968:95, 228, *passim*), Selkirk (1972:187, *passim*), Shibatani (1973:88-89, 93), Siegel (1974:126), Rubach (1975; 1977:38, 141-142, *passim*; 1984:38, 45, *passim*), Gussmann (1978: 115-118, 139; 1980a:31, 66, 83, *passim*), Ruszkiewicz (1983:87, *passim*), Halle and Mohanan (1985: 98), and many others.

Rubach's claim voiced in (12b) that "for English and Polish [voice] and [tense] are concomitant features" will be discussed in connection with rule (13) and other rules to be presented later in the paper.

Rubach (1975:131) formulates the rule in (13) to account for the complete voicelessness of the final segments in (14):

(14) *robs*, *beds*, *bags*

when the obstruents in question occur before a pause or a voiceless segment. Also, as indicated in (12b), his intension is to illustrate the relatively rare case when the features [voice] and [tense] must be separated. This is necessary because, as Rubach (1975:131) observes, "This fully unvoiced obstruent [i.e. the last obstruent in (14), P. R.] is not, ..., phonetically identical with [s] as in *see*."

It is to be observed that if English (and Polish) obstruents are assumed to differ in terms of the feature [tense], then the feature [voice] is redundant.

This relation is expressed by the rules in (15):

(15) a. $\begin{bmatrix} -\text{son} \\ +\text{tense} \end{bmatrix} \rightarrow [-\text{voice}]$ b. $\begin{bmatrix} -\text{son} \\ -\text{tense} \end{bmatrix} \rightarrow [+\text{voice}]$

If, on the other hand, the obstruents in question are taken to differ in terms of the feature [voice], then [tense] becomes redundant.

Rubach appears to rely on the feature [voice] in his formulation of obstruent voicing and unvoicing rules. Therefore it seems plausible to assume that it rather than the feature [tense] is distinctive among English (and Polish) obstruents. If my assumption is correct, then by (16):

(16) $\begin{bmatrix} -\text{son} \\ +\text{voice} \end{bmatrix} \rightarrow [-\text{tense}]$

the specification [—tense] in the left-hand part of the rule in (13) becomes redundant.

The same remarks apply to Rubach's (1975:134) formulation of rule (10), reproduced here as (17):

(17) $\begin{bmatrix} +\text{obstr} \\ -\text{tense} \end{bmatrix} \rightarrow [-\text{voice}] / __ \begin{bmatrix} +\text{son} \\ -\text{voice} \end{bmatrix}$

which is supposed to devoice the obstruents spelled *dz*, *b* and *d* in the Polish words:

(18) *pieniędzy* ('money' gen. pl.), *srebra* ('silver' gen. sg./nom. pl.), *wyjadę* ('I shall leave')

provided that the following sonorants have already been devoiced. Moreover, the use of the feature [—tense] in (17) leads to a loss of generalization: the rule can not apply vacuously to such Polish strings as:

(19) *tatę* ('father' acc. sg.), *brata* ('brother' gen. /acc. sg.) etc.

although, with the final sonorants devoiced, they are perfectly well-formed strings at the low phonetic level.

As was indicated above, it has been a common practice among the generativists to describe voicing phenomena in terms of the feature [voice]. To illustrate this observation, let us quote a few other rules:

(20) (=Chomsky and Halle's 1968:238, rule (2))

$$t \rightarrow [+\text{voice}] / = \begin{Bmatrix} \text{mi}__+\text{ive} \\ \text{ver}__+\text{ion} \end{Bmatrix}$$

(21) (=Rubach's 1984:38, rule (32))

$$s \rightarrow [+\text{voiced}] / \begin{bmatrix} +\text{syll} \\ +\text{tense} \end{bmatrix} - [-\text{cons}]$$

(22) (=Rubach's 1984: 45, rule (48))

$$z \rightarrow [-\text{voiced}] / - \begin{Bmatrix} \text{is} \\ \text{ive} \end{Bmatrix}$$

(Remark: rules (21) and (22) are modified versions of Chomsky and Halle's 1968: 228, rule (119b) and 232, rule (124), respectively.)

(23) (=Ruszkiewicz's 1983:87, rule (19))

$$[-\text{son}] \rightarrow [{}_b\langle - \rangle - \text{voice}] / \left[\begin{bmatrix} -\text{voice} \\ \left\langle \begin{matrix} +\text{cor} \\ -\text{son} \\ +\text{dist} \\ \alpha\text{strid} \end{matrix} \right\rangle \end{bmatrix}_a \right] \# \left[{}_a\langle \alpha\text{strid} \rangle \right] \#$$

Condition: if a, then b.

(24) (=Gussmann's 1978:115, rule (146) unvoicing final obstruents in Polish)

$$[+\text{obstr}] \rightarrow [-\text{voice}] / - \# \#$$

(Remark: details aside, rule (24) is identical with Rubach's 1977:38, rule (6) unvoicing word-final obstruents in German.)

(25) (=Selkirk's 1972:187 rule of full voicing assimilation in English)

$$\begin{Bmatrix} \text{d} \\ \text{v} \\ \text{z} \\ \eth \end{Bmatrix} \rightarrow [-\text{voice}] / -][\# \begin{bmatrix} \text{C} \\ -\text{voice} \end{bmatrix} \cdots$$

(Remark: the rule in (25) has been reconstructed on the basis of Selkirk's (1972:187) statement of the environment together with the accompanying examples and her commentary).

This partial list should be enlarged by adding the rules that have already been discussed.

Let us now take a closer look at, for instance, rule (21). Suppose that /s/ has the distinctive feature specification in (26):

(26) $\begin{bmatrix} +\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \end{bmatrix}$

That is, I assume that the feature [tense], rather than [voice], is distinctive in the English obstruents. Consequently, /s/ is redundantly [−voice].

Suppose further that all phonological rewrite rules like (21) are interpreted in such a way that the class of segments designated by (26) incorporates the feature [+voice] in the given environment. This interpretation is more cogent than the one which says that the specification in (26) is rewritten as [+voice]. To get the last-mentioned interpretation, the rule would have to take on the following shape:

(27)
$$[-\text{voiced}] \rightarrow [+\text{voiced}] \,/\, \begin{bmatrix} +\text{syll} \\ +\text{tense} \end{bmatrix} \begin{bmatrix} ____ \\ +\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \end{bmatrix} [-\text{cons}]$$

This convention of writing phonological rules is adopted in, for instance, Laskowski (1975:68, *passim*).

After the rule in (21) (or its equivalent in (27)) has applied, the specification in (28):

(28)
$$\begin{bmatrix} +\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \\ +\text{voice} \end{bmatrix}$$

is formed. This is an ill-formed segment because outside the class of [+syll] segments the features [+tense] and [+voice] cannot cooccur.[1]

To remedy the specification in (28) in a principled way, one might resort to the morpheme structure conditions of English, especially to the segment redundancy statements. In particular, of interest are the redundancy statements in (15a) and (16) or modifications thereof presented in (29):

(29) a. $\begin{bmatrix} -\text{syll} \\ +\text{tense} \end{bmatrix} \rightarrow [-\text{voice}]$ b. $\begin{bmatrix} -\text{syll} \\ +\text{voice} \end{bmatrix} \rightarrow [-\text{tense}]$

[1] Halle's proposal quoted in Postal (1968:78) to specify half-voiced segments as $\begin{bmatrix} +\text{tense} \\ +\text{voice} \end{bmatrix}$ was not particularly felicitous. Rubach (1975:128) is right when he claims that "the devoicing of obstruents is not due to the introduction of articulatory tension but rather to the assimilation to [−voice] segments." See, however, the discussion below.

Applying (29a) to (28) produces (30):

(30) $\begin{bmatrix} +\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \\ -\text{voice} \end{bmatrix}$

which means that the effect of the *s*-Voicing rule in (21) has been undone. If, on the other hand, (29b) is applied, the resulting segment is:

(31) $\begin{bmatrix} -\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \\ +\text{voice} \end{bmatrix}$

which is as required.

It should be noted that applying morpheme structure conditions in the above fashion is not free from diffiulties. First of all, since the specification in (28) is the product of applying a phonological rule, it is not an underlying segment. Thus the procedure described above requires that morpheme structure conditions apply not only at the underlying level but also at the level of intermediate representation. Secondly, and more importantly, contrary to the classical view of morpheme structure conditions as implicational rules, they must be given the power of changing the values on features, i.e., they must have the status of feature-changing rules.

Let us now entertain the idea that (21) is an *s*-Laxing rather than an *s*-Voicing rule. As such it must be based on the feature [tense] and can assume the form in (32):

(32) *s*-Laxing

$$[+\text{tense}] \rightarrow [-\text{tense}] / \begin{bmatrix} +\text{syll} \\ +\text{tense} \end{bmatrix} \begin{bmatrix} \text{____} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \end{bmatrix} [-\text{cons}]$$

The only difficulty resulting from the application of this rule consists in that it produces a $\begin{bmatrix} -\text{tense} \\ -\text{voice} \end{bmatrix}$ segment in the wrong environment, i.e. in the position between a tense vowel and a non-consonant, which is a bilaterally voiced

environment. Observe, however, that otherwise $\begin{bmatrix}-\text{tense}\\-\text{voice}\end{bmatrix}$ segments are perfectly well-formed.[2]

The latter problem can be eliminated by postulating a surface phonetic constraint or a convention which would have the power of a feature-changnig rule. This is tantamount to saying that ruling out a sequence like (33):

(33) $\begin{bmatrix}+\text{syll}\\+\text{tense}\end{bmatrix}\begin{bmatrix}-\text{tense}\\-\text{voice}\end{bmatrix}-\text{cons}$

is no satisfactory solution since a grammar which did that could not achieve the level of observational adequacy in the sense of Chomsky (1964:63).

In the light of the foregoing discussion it becomes clear that Rubach's (1975:131) claim (adduced in (12b) above) concerning the automatic conversion of the value on the feature [tense] which is triggered by changing the value on the feature [voice] is something that is easier said than done. In order to get things come out right, a number of assumptions accepted in generative phonology without much debate must be revised.

To pour some more oil on the flame, let us take a quick look at rule (22). If it applies in the form given above, sequences like that in (34):

(34) $[+\text{syll}]\begin{bmatrix}-\text{tense}\\-\text{voice}\end{bmatrix}[+\text{syll}]$

are created. Now, whatever rule or convention is set up to take care of (33) it will also affect the string in (34) converting [−voice] into [+voice], which is contrary to what is required.

Suppose that (22) is reinterpreted as a *z*-Tensing rule. It will assume the form in (35):

(35) *z*-Tensing

$$[-\text{tense}]\rightarrow[+\text{tense}]\,/\begin{bmatrix}\text{———}\\+\text{ant}\\+\text{cor}\\+\text{strid}\end{bmatrix}\begin{Bmatrix}is\\ive\end{Bmatrix}$$

and produce segments like (28) above. It is clear that this rule repeats all the difficulties generated by rule (21).

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[2] $\begin{bmatrix}-\text{tense}\\-\text{voice}\end{bmatrix}$ is a possible configuration not only in the obstruents but also in the sonorants. See Biedrzycki (1975) on the phenomenon of voiceless vocoids in Polish (and English).

To solve the issue, I suggest that the following assumptions be made:

(36) a. Morpheme structure conditions[3] are allowed to operate, in an extended form, at the level of intermediate representation, after the application of the individual rules.

b. Morpheme structure conditions have the power of feature-changing rules, and, most importantly,

c. Should two conflicting morpheme structure conditions be applicable, like (29a, b) in the case of rule (21), the ambiguity is resolved by the following principle:
Given that phonological rules are of the form A→B/—C, where B is the output of the rule,[4] and morpheme structure conditions are of the general form If: D

↓

Then: E

a given morpheme structure condition can apply to the output of a phonological rule if the latter is a member of the *If* part of the former. Formally, if B ∈ D.

In the ambiguous cases discussed above, principle (36c) will secure the correct choice of a morpheme structure condition. For instance, the specification in (28), repeated here as (37):

(37) $\begin{bmatrix} +\text{tense} \\ +\text{ant} \\ +\text{cor} \\ +\text{strid} \\ +\text{voice} \end{bmatrix}$

which results from applying rule (21) (or its equivalent in (27)), can be affected only by the segment redundancy statement in (16) because the rule's factor B (i.e. [+voice]) is included in the *If* part of the latter (i.e. $\begin{bmatrix} -\text{son} \\ +\text{voice} \end{bmatrix}$ or $\begin{bmatrix} -\text{syll} \\ +\text{voice} \end{bmatrix}$ as in (29b)).

The net effect of the principle in (36c) is that the value on the feature introduced by a phonological rule just prior to the application of the segment redundancy statement is preserved. It is largely on open question, however, how far down the derivation of a string morpheme structure conditions (or

[3] Morpheme structure conditions or any other mechanism that would be capable of readjusting phonological specifications. See the discussion below.

[4] In the narrow sense of the term. I am following Rubach's (1982:107) terminological use here.

whatever else the relevant devices are called, cf. note 3 above) should be allowed to intervence.

A cursory inspection of the rules presented above reveals that quite diverse processes are involved here. They differ with respect to their place in the grammar, degree of generality, type of conditioning and the question of whether or not the feature [tense] is affected given the assumption that the processes are based on the feature [voice].

Let us consider the last-named issue first. Since it appears that enough English examples have been discussed so far, I suggest we concentrate on the relevant Polish data.

The linguistic literature contains accounts of the voicing phenomena in Polish obstruents which resemble those occurring in English (discussed above), i.e. processes which affect the features [tense] and [voice] simultaneously. At the same time, the literature is largely silent on the processes which affect only the feature [voice], leaving the specification for [tense] intact.

Various authors have observed that in Polish sequences of obstruents need not be uniform with respect to voicing. This lack of congruence can be due either to differences of accent (Educated Warsaw Polish versus the Cracow-Poznań type of pronounciation, cf., for instance, *The dictionary of Polish pronunciation*, p. XXVII), to phonostylistic factors (e.g. Rubach 1975) or to some unidentified conditions (Łobacz and Jassem 1971, Jassem and Łobacz 1972). For instance, in the pronounciation of the Wielkopolska region, the following obstruent clusters:

(38) a. /kv/ — *kwadrat* ('square'), *kwas* ('acid')
b. /sv/ — *swada* ('fluency of speech'), *swastyka* ('swastika')
c. /tv/ — *twór* ('product'), *twardy* ('hard')
d. /xv/ — *chwała* ('glory'), *chwila* ('a while')

occur within morphemes. Łobacz and Jassem (1971:173) note the occurrence of the clusters /zt/, /fz/, /tb/, and a few others, but they do not state their distribution. It is deplorable that the relevant literature contains no information concerning the degree of voicing found in the 'voiced' obstruents in question. In my idiolect they appear to be devoiced in that part of the segment which is adjacent to a voiceless obstruent.

There is a type of context in which Polish obstruents get completely devoiced, with the value on the feature [tense] remaining intact. This phenomenon forms a part of the process which produces voiceless vocoids in the intonational tail following the nuclear tune of the falling type (i.e. high or low fall). This process is described informally in Biedrzycki (1975). Rubach (1975) presents an attempt to account for it in generative terms though in spirit his approach does not differ from Biedrzycki's. In particular, Rubach (1975:134) assumes the existence of a sonorant unvoicing rule (which he does not formu-

late) which feeds his stylistic rule (10) reproduced above as (17). Given the data in (18) as well as those in (39):[5]

(39) a. (from Biedrzycki 1975:17)
noġ̊i (legs''), bardz̥o̥ ('very (much)'), dzień dob̥r̥y ('good day')
b. prędz̥e̥j tą̥m ('hurry up'), był na ban̥i̥ ('he was drunk'), nędz̥n̥ý ('miserable'), co tą̥m mḁsz ('what have you got')

it is difficult to imagine how one can plausibly formulate a rule which would take care of the voiceless sonorants. In other words, on the Biedrzycki-Rubach approach there is no natural way to explain why, for instance, the last vowel in *co tam masz* gets devoiced and why the process of devoicing spreads to the left, affecting the segment /m/ and other sonorants. The forms in (40):

(40) *zamsz* ('suede'), *msza* ('mass'), *Omsk* etc.

show that it is not natural for /m/ (or any other nasal or liquid) to get devoiced in the position before a voiceless segment.

I would like to suggest that what is at work is a devoicing process of a different format. First of all, the process affects whole syllables, not just individual segments. Second, it is not directional, i.e., it is not statable as a case of regressive or progressive assimilation of voicelessness. The following formulation:

(41)
$$\sigma \rightarrow [-\text{voice}] \,/\, \overset{\text{H/D}\quad \text{L}}{\underset{\sigma}{\diagdown\!\diagup}} \quad \ldots - \ldots]_s$$

where: σ = syllable
H = High tone
D = Mid tone (*D* for Goldsmith's 1979:208 *Drop*)
L = Low tone

is a first approximation.[6] The rule devoices all syllables that happen to occur

[5] The small circles placed above or below ordinary letters are supposed to indicate that the corresponding phonetic segments are completely devoiced.

[6] Two things should be noted in connection with rule (41). First, it presupposes a division into syllables of the string to be affected. Second, the high/low fall need not be realized on a single syllable but can involve two neighbouring syllables, as in (i):

(i)
$$\overset{\text{H/D}\quad \text{L}}{\underset{\sigma\quad\sigma}{|\quad|}}$$

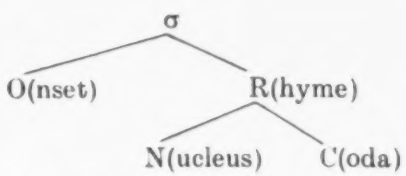
Then the syllable dominated by H/D is pronounced on a level tone.

The difference between (i) and the relevant portion of (41) entails interesting consequences. Namely, the coda of the syllable dominated by H/D alone tends to preserve its voiced nature regardless of whether it is occupied by a sonorant or an obstruent. On the other hand, the coda of the syllable dominated by H/D L loses its voicing.

in the section bounded by a high or low fall on the left and sentence boundary on the right.[7]

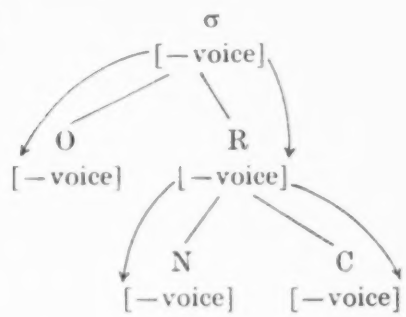
Given that the structure of the syllable is like that in (42) (cf. Selkirk 1980:569, and the references mentioned in note 5 on the same page):

(42)



and assuming some sort of feature inheritance/percolation mechanism (for details see Chomsky 1980:30, note 34; Lieber 1981:49-50 and 54; Williams 1982:279; and Ruszkiewicz 1986), all the constituents of a syllable get devoiced, as exemplified in (43):

(43)



If the positions designated as O and C happen to be occupied by obstruents, they too get devoiced in the usual fashion.

As indicated above, the interesting thing about this process is that it affects only the feature [voice], leaving the value on the feature [tense] intact.

It now becomes obvious that three types of voicing phenomena exist in both English and Polish obstruents:

(44) a. voicing/devoicing processes which also involve the feature [tense]
b. devoicing processes which produce partially voiced obstruents, without affecting the feature [tense]
c. devoicing processes which produce completely voiceless obstruents, at the same time leaving the feature [tense] intact.

The last two of these can be considered variants of the same process, see (45) below.

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[7] I am ignoring here the sporadic cases observed by Biedrzycki (1975:21) when the syllables which normally carry the nuclear tune are also devoiced.

In generative phonology (44a, b, c) have all been described in terms of the feature [voice]. This practice may be due to Chomsky and Halle's (1968) inconsistency in dealing with the features [voice] and [tense]. Thus, on pp. 176-177 (see *Table 1*) the feature [tense] is only used to characterize the vowels and semivowels (i.e. the nonconsonantal segments). The feature [voice] appears only in the specification of the consonantal segments. However, in the descriptive statements found on pp. 324-326, Chomsky and Halle (1968) relate the feature [tense] to both nonconsonantal and consonantal sounds.

This state of affairs is highly implausible. The consistent use by many writers of the feature [voice] in stating the voicing/devoicing rules implies that we have to do here with a more or less uniform phenomenon. At the same time it becomes obvious that now the voicing/devoicing processes affect the feature [tense], now they do not. The latter property of the [voice]-based processes remains unexplained.

In view of the foregoing discussion it seems plausible to suggest that voicing phenomena in English and Polish fall into two categories:

(45) a. [tense]-based processes (type (44a))
b. [voice]-based processes (type (44b, c))

It will be shown in the remainder of the paper that these two types can be related to separate components of the respective grammars.

Consider the question of generality of the processes discussed and their placement in the grammars of English and Polish. A cursory glance at rule (20) reveals that it applies only to two English roots, *mit* and *vert*, when they occur in the position before specified suffixes (+*ive* and +*ion*, respectively).[8] In the case of rule (21), the range of application is significantly wider though, obviously, its input strings by no means run into hundreds. Rules (22) and (23) appear to do similar things but the input strings taken care of by rule (23) far outnumber those associated with rule (22). This situation is due to two factors. Firstly, the /z/ affected by (22) is only one of two segments affected by rule (23) (i.e. /z/ and /d/). Secondly, since the /z/ and /d/ of rule (23) function as exponents of the regular plural, Saxon Genitive and the regular past, it is not surprising that the regular nouns and verbs as well as the irregular nouns which receive the Saxon Genitive morpheme should *en masse* make the application of the latter rule so general. Rules (24) and (25) come from two different languages and will not be compared here. Suffice it to note at this point that since rule (25) has been designed to operate on (phonological) surface structure, one might be tempted to accord it relatively great generality. The fact, however, is that the rule devoices (or rather tenses) the final obstruents in a very limited

[8] Strictly speaking, this is only true of American English. In British English the root *vert* does not undergo rule (20).

class of what are known as nonlexical items (e.g. auxiliaries, prepositions, conjunctions).

The question that must now be posed is: In which segments of the grammar should the individual rules be located? The answer to this question is by no means straightforward. In the standard theory of phonology rules which affect phonological segments can be placed in one of the three possible components: (a) the readjustment rules, (b) the phonological component, and (c) the late phonetic rules.

It is noteworthy that Chomsky (1964:88ff.) speaks of "phonological regularities" in connection with rules which produce a similar effect as rule (20) does. In Chomsky and Halle (1968:223) rule (20) appears as one of the readjustment rules, i.e. outside the phonological component.

Linguistic research carried out in the period after the publication of Chomsky's (1970) "Remarks on nominalization" has not only redefined, following the emergence of a morphological component, the domain of syntax but also thrown some new light on the nature of phonological rules. For instance, in connection with the rules like (20) above Aronoff (1976:6) asks "whether some of these alternations which are not phonologically determined are in fact not part of the phonology at all" and argues that "a class of rules which a more tightly constrained theory rejects as not optimal phonological rules can be fruitfully included in a theory of morphology."

The linguistic literature, both structuralist and generative, contains intuitive statements pertaining to the relation between the lexicon and syntax (or *grammar* in pre-generative terms). The formulation of explicit criteria demarcating one province from the other is due to Wasow (1977). In particular, he proposes the following criteria (331):

	Lexical Rules	Transformations
Criterion 1	do not affect structure	need not be structure preserving
Criterion 2	may relate items of different grammatical categories	do not change node labels
Criterion 3	"local"; ivolve only NPs bearing grammatical relations to items in question	need not be "local"; formulated in terms of structural properties of phrase markers
Criterion 4	apply before any transformations	may be fed by tranformations
Criterion 5	have idiosyncratic exceptions	have few or no true exceptions

Various authors referred to these criteria separately, both before Wasow (1977) and afterwards. For instance, Chomsky (1970) made use of Criterion 2. Roeper and Siegel (1978) found their paper on Criterion 3. The proponents of lexical functional grammar (see the Bresnan-edited 1982 volume) draw heavily on Criterion 5.

It was research within lexical functional grammar which gave Mohanan (1982) an impetus to revise the established view of the phonological component.[9] He makes the following confession (viii): "An initial impetus came from the course of computational linguistics given by Joan Bresnan and Ron Kaplan in 1978, where I was exposed to the idea that syntactic rules which have lexical exceptions are lexical rules. What would happen if the same principle applied in phonology as well, I asked myself: the traditional 'morphophonemic' rules would become lexical rules, and 'allophonic' rules would become post-lexical rules. The idea that phonological rules could apply in the lexicon took seed in my mind."

Another way of saying that a rule has lexical exceptions is to state that it applies to a lexically defined class of items. Of the rules discussed so far, rule (20) clearly has this sort of status. Thus, it is not surprising that Chomsky and Halle (1968) never included it among the rules of the phonology.

But what about the remaining rules? Consider, for instance, rule (21). Although it has the appearance of a purely phonological rule, it is morphologically governed. Rubach (1984:38) himself states that, "This rule captures the well known behavior of //s// in prefix-stem structures[?]", such as the following (=Rubach's 1984:38 examples in (33)):

(47) *resign, design* vs. *consign*
resume, presume vs. *consume*
resist vs. *consist*

As exceptions to rule (21) Rubach (1984:39, note 18) quotes *spacious, racial usage* etc., which exemplify a different sort of structure, i.e. the base-suffix structure.

Unlike (22), which is a morphologically conditioned rule, rule (23) again has the appearance of being purely phonological. The fact, however, is that it is as heavily constrained by morphological factors as rule (21). That is, it tenses //d// or //z// whenever they occur to the right of the base within a word but not

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[9] Recall that the first revision of the phonological component in the post-1968 period was due to Siegel (1974). She established two classes of affixes in English, class I affixes and class II affixes, and made the claim that, since some of the class II affixes are stress-sensitive, it was plausible to remove the cyclic stress assignment rules from the phonological component and place them between class I and class I affixation processes. This move also enabled Siegel to dispense with global constraints on class II affixation.

inside the base, cf.:

(48) a. plǣs#d → plǣs#t (*placed*)
b. mis#dēl ↔ *mis#tēl (*misdeal*)

Gussmann's (1978) rule adduced in (24), which unvoices word-final obstruents in Polish, applies only to major lexical categories (N, V, A), not to minor categories like preposition. This follows from the application of Chomsky and Halle's (1968:366) convention (115), called SPE-I in Selkirk (1972:12), and Selkirk's (1972:12) SPE-II convention, which makes it impossible for nonmajor categories to occur before # #. Gussmann's formulation of the rule implies that it applies to phonological surface structures and that consequently it is a rule of the phonological component. Observe, however, that being a noun versus a preposition is a lexical property of the given item. This means that in a sense rule (24) is also lexically governed.

In certain respects, rule (25) is similar to (24). Since it mentions a single occurrence of # in its environment, the segments undergoing it must occur in the final position of nonmajor categories. Thus, like rule (24), it too is lexically governed.

Among the sequences to be affected by rule (25) Selkirk (1972:187) mentions *of course* and *as for*. But these as well as *have to*, *used to* etc. are now lexicalized constructions. Rule (25) is thus supposed to account for both lexicalized constructions and syntactic structures. This is a spurious move.

Observe that, as it now stands, rule (25) produces ill-formed strings. The problem is that the rule should be allowed to tense the /d/ of *could* and *should* in (49) (from Selkirk 1972:187):

(49) a. You could pawn it.
b. I should think so.

only after the preceding vowel is deleted. Consequently, the respective representations in (50) (based on Selkirk's 1972 representations for American English):

(50) a. [juw kət pɔ́n ɪt]
b. [aj šət θíŋk sow]

are ill-formed.

Given though that vowel deletion precedes obstruent tensing in (49) and other similar examples, it may well be the case that syllable-based principles of some sort set in. Observe that in the onset part of the English syllable sequences of obstruents must be uniform in the phonetic representation with respect to the feature [tense]; in the coda part, they need not, though certain restrictions apply here as well. Consider the following examples (from Jones

1975:221, § 847):

(51) *width* [widθ], *breadth* [bredθ], *amidst* [əˈmidst]

which contain sequences of obstruents in their coda part that are not uniform with respect to the feature [tense]. Note, however, that the codas in (51) follow the pattern in (52):

(52) $\begin{bmatrix}-\text{son}\\-\text{tense}\end{bmatrix}\left(\begin{bmatrix}-\text{son}\\+\text{tense}\end{bmatrix}\right)_0$

and not one like (53):

(53) $\begin{bmatrix}-\text{son}\\+\text{tense}\end{bmatrix}\left(\begin{bmatrix}-\text{son}\\-\text{tense}\end{bmatrix}\right)_0$

This restriction explains why the realizations in (51) are well-formed, but those like (54):

(54) *[plejsd] (*placed*)

are not and must obligatorily undergo a rule of the appropriate kind. On the other hand, the examples in (51) are only optionally converted into those in (55):

(55) [witθ], [bretθ], [əˈmitst]

The observations made above suggest that rule (25) is a spurious rule of English phonology. Its function should be taken over by two different kinds of rules, lexically governed rules and late phonetic rules (or syllable-based principles of some sort).

Taking into account the properties of the rules in (21)—(25) and Wasow's (1977) criteria in (46) it would not be completely implausible to class the rules in question as lexical.[10] This move runs parallel to the syntactician's attempt to free the syntactic component from all processes which are notoriously bound with (lexical) exceptions.

[10] It should be obvious that classing rules (21)—(25) as lexical must be matched with far-reaching changes in their structure. For instance, all boundary symbols must be removed. This should come as no surprise since in lexical phonology a number of separate strata are set up which encode the information formerly carried by the boundary symbols. It must be noted at this point that in the earlier frameworks the boundary symbols + and # were burdened with too many functions and in consequence they were not attached to the individual affixes consistently. For instance, Chomsky and Halle (1968:85—86) argue that, since the suffix *-ing* is neutral with respect to stress and both /r/ and /l/ in e.g. *hindering* and *twinkling* (the participle) remain syllabic in the position before it, it should carry the boundary #. On the other hand, Gussmann (1980a:38), talking about the phenomenon of *linking r* in British English, appears to class *-ing* as a +boundary suffix.

It is obvious that classing, for instance, rules (25) (or a version thereof) and (23) as lexical is not tantamount to putting them into one bag. Selkirk (1972:82) observes that the overwhelming tendency among English obstruents is towards the regressive voicing (i.e. tensing) assimilation and that "the *only* segments affected by the progressive voicing assimilation are the single-segment morphemes *-z-* (and *-d-* in the preterite)".

Taking Halle and Mohanan's (1985) approach as a first approximation to the lexical model of English phonology, Selkirk's observation can be accommodated by assigning forms like (51) to Stratum I and those like (54) to Stratum IV. These strata are then allotted as domains to the rule of regressive tensing assimilation and the rule of progressive tensing assimilation, respectively.

Returning now to the question of relating [tense]-based and [voice]-based processes to the structure of the grammar, I would like to suggest that the former are basically lexical in both English and Polish while the latter postlexical.

Nykiel (1986) has recently argued against Polish morphology being viewed as level-ordered. Her conclusions do not bear directly on the structure of Polish phonology. I assume Halle and Mohanan's (1985:58) claim that:

(56) Languages may differ in the number of strata they recognize, but there appear always to be at least two strata, one lexical and the other postlexical, unless the language has no morphology whatever.

to be true and wish to emphasize that certain rules like the one of syllable devoicing mentioned above are definitely postlexical and that at least some of the [tense]-based rules should be treated as lexical. I realize though that my proposals expressed here constitute hypotheses which are subject to empirical verification.[11]

To sum up, we have dealt in the present paper with processes which are traditionally called the voicing and devoicing/unvoicing of obstruents. It has been shown that basing the processes upon the feature [voice] and treating it and the feature [tense] as concomitant lead to serious difficulties. It has been argued that voicing phenomena in English and Polish obstruents fall into two classes of processes: [tense-]based and [voice]-based, and that the features in

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[11] Our knowledge of the voicing phenomena in Polish is still far from satisfactory. In his pioneering work on Polish morphonology, Laskowski (1975) does not discuss voicing phenomena. Gussmann (1975) discusses a host of Polish examples which involve voice assimilation of one sort or another but chooses to disregard the issue (116). In Gussmann (1980b) the need for rules that would take care of voicing phenomena in Polish is duly appreciated but the *Summary of Rules* found on pp. 133-135 does not contain a single rule of voicing or devoicing. Rubach's (1975) approach is only a first approximation. It follows that voicing phenomena in Polish present a problem area which still awaits investigation.

question need not be concomitant. The two categories of processes have further been related to two different components of the grammars of English and Polish.

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S 1

THE DEFINITE ARTICLES IN ENGLISH AND MOD GREEK: A COMPARISON

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0. Introduction

The aim of the present paper is to examine the *definite article* in two languages, namely, English and Mod Greek. More specifically, it will consider the articles of those two languages first from a syntactic point of view within a theoretical framework which gives prominence to the head-modifier relationship. Then, a contrastive taxonomy of the article use in English and Mod Greek will follow. Finally, a semantic analysis of the article use will be attempted whereby a justification for the presence/absence of the definite article will be offered.

1. The Syntax of the Articles

In Mod Greek there is a fairly wide range of determiners which appear to correspond to the English definite article *the*. This range includes *o* (Singular, Masculine, Nominative), *i* (Singular, Feminine, Nominative) *to* (Singular, Neuter, Nominative and Accusative) etc., etc. In other words, cases ,number and gender are reflected in different lexical specifications for various determiners in Mod Greek all of which are reflected in the single form *the* in English. As far as the indefinite articles are concerned, what roughly corresponds to the English article a(n) is the unstressed numerical *énas*, (*mia*, *éna*), "one".

The next step that this paper will take is to try to justify a certain claim in connection with the status of the article within the structure of the noun phrase. There appears to be a kind of asymmetrical relation between words in the sense that there exists a subordination of one element to another. This sort of relation whereby one element is subordinated to another in terms of part

to part and not whole to part (as in the case of constituency structure) we call *DEPENDENCY*. In dependency the subordinating element is the *HEAD* whereas the subordinated one is the *MODIFIER*. To give a concrete example, in a phrase like *clever boys*: the position of the word *clever* is fixed relative(ly) to that of *boys* and not the other way round; that is, *clever*, as an attributive adjective occurs before the noun to which it attributes a quality. In that sense, if *boys* had occurred in any other position, *clever* would still have occurred just before it. Furthemore, the fact that *clever* can appear in this phrase is due to the fact that *boys* is also present. Finally, and most importantly, the noun *boys* provides the morphosyntactic locus for the whole phrase: it is the noun which marks the plurality and in languages like, say, Mod Greek it is the head-noun with which the adjective-modifier would agree in person, case and number. Now, the problem posed here is this: what is the function of the article in that respect? Is it a head or a modifier?

There seems to be some controversy over this matter. Matthews (1981) seems to regard articles as modifiers, whereas Brame (1982) and Hudson (1984) clearly consider them to be heads. The reader should bear in mind that we are dealing with syntax and therefore the fact that articles appear to be "empty" words, almost in the sense that, say, the auxiliary *do* is an empty word, has nothing to do with the syntactic status of the articles. We shall therefore examine them from a purely syntactic angle.

In considering the Mod Greek articles, first, we observe that the article is the morphosyntactic locus given that in many nouns (in which foreign loans are included) it is the article which determines case and gender. Compare for example (1) and (2) with (3) and (4) below:

(1) *o grammatéas.*	(2) *o vuleftis.*
Art.-Masc. secretary.	Art.-Masc. Member of the Parliament.
(3) *i grammatéas.*	(4) *i vuleftis.*
Art.-Fem. secretary.	Art.-Fem. Member of the Parliament.

It is only the artcile differentiation (o vs. i) that marks gender here.

Note that the same thing applies to grammatical case with a considerable number of nouns and adjectives; thus, we have *i areti* vs. *tin areti*, "virtue" *i palikarjá*, "bravery" and a host of other nouns in which the difference between the nominative, normally the case for subjects, and the accusative, the case for objects is marked by the article alone, (i.e. *i* vs. *tin*)..

Even more importantly, word order in Mod Greek noun phrases seems to be determined by the presence of the article: The presence of an indefinite article allows either order when the noun phrase contains an adjective, or the article is totally absent, but it allows only the sequence Adjective followed by Noun if a definite article is the head. Note that in all these cases the position of the acrticle is fixed.

(5) a. *éna ómorfo koritsi.* (5) b. *éna koritsi ómorfo.*
A pretty girl *A girl pretty.

(6) a. *to ómorfo koritsi* (6) b. **to koritsi ómorfo*

(7) a. *án9ropi timii δe vriskonde éfkola simera.*
Men honest not are-fount easily today
b. *timii án9ropi δe vriskonde ékola simera.*

Note that (6b) above can become grammatical if both the noun and the adjective have a definite each as their head (i.e. *to koritsi to ómorfo*).

But the most important piece of evidence comes from what Brame (1982) calls "lexical primitives" like the French *au*, formed from *a* and *le* and the Mod Greek *ston* (*stin(n)*, *sto*) consisting of the preposition *se* plus the article. Any theory favouring the analysis of the article as a modifier is bound to face problems in view of the following facts: It is by now universally accepted that a preposition is the head of prepositional phrases. In traditional grammars, the noun it modifies is called the "object" of the preposition, in TG grammar, the preposition is the dominating node, in dependency theory (Matthews (1981)), it is the head of a prepositional phrase. Given, then, this syntactic status of the preposition, it is impossible to account for prepositional phrases containing a lexical primitive. Take for instance the phrase *stin ákri*, "at the end", "on the edge". It is impossible to state that the noun *ákri* is both dependent on stin (preposition) and head (of the article). No problem faces an analysis taking both the preposition and the article to be heads of the noun *ákri*.

As far as English is concerned, the evidence supporting the analysis of the article as head is poorer but worth considering, nevertheless. In the first place, one can consider the determiner in general and the article in particular as a kind of subcategorising. Thus a common noun appears to be obligatory after the definite article *the* and optional after other determiners such as *this*, for instance. It is also the morphosyntactic locus in some sense, notably with respect to the categories *DEFINITENESS*, *WH-NESS*, *COUNTABILITY* and *PERSON*. Following Sommerstein (1972), and Hudson (1984), we can analyse *the* as an allomorph of *he*, *she*, *it* and *they*, none of which can occur before a lexical noun, unlike *we* and *you*, which can (cf. *we men*, *you men*, **he man*).

Having accepted this somehow controversial but nevertheless not unreasonable view of taking articles to be heads and *not* modifiers, we shall proceed to deal with the actual use of both the definite articles in English and in Mod Greek. The list of the various uses of them is not meant to be exhaustive but it will give a fairly clear picture and it can certainly be read independedly by those who are not interested in issues that have to do with linguistic theories.

2. The Use of the Definite Articles

In both languages the definite article is used as the head of a noun that has been defined earlier either by previous mention in the discourse (explicit contextual basis) or with nouns the referents of which are mutually known from previous discourse (implicit contextual basis), or with a noun whose referent can be indicated without having been previously mentioned (cf. Christophersen (1939), Stephanides (1978) and for the Mod Greek use A. Tzardzanos (1946)).

(1) a. Once upon a time there was a king. The king had two sons.
b. *mía forá kjéna kjeró itan énas vasiljás. o vasiljás ixe tris jús.*

(2) a. There is a football team in our village. The players are all under twenty except for the goalkeeper who is twenty two.
b. *ipárxi mja poδosferiki omáδa sto xorjó mas. i péxtes ine óli káto apó ikosi ektós apó ton termatofilaka pu ine ikosiδio.*

(3) a. i. Fetch me the iron.
ii. When is the conference taking place?
iii. The sky is always blue in those islands during the summer
b. i. *fére mu to siδero.*
ii. *póte 9a jini to sinéδrio;*
iii. *o uranós ine pánda yalanós se aftá ta nisjá to kalokjéri.*

In (3), the referent has not been previously mentioned but its definiteness is clearly determined by the context. For instance, in (3) the speaker can be a housewife who has got some clothes that need ironing. The hearer in that case can easily infer to which iron the speaker uttering (3ai) refers.

2.1. *English and Mod Greek Definite Articles Compared*

In what follows, we shall examine the main aspects of the article usage in the two languages. The first thing to notice is that in English, but not in Mod Greek, the article and whatever else is included in the category *DETERMINER* are mutually exclusive. For example in English there is no definite article in between the demonstrative and the dependent noun. In Mod Greek on the other hand, this is in fact the case.

(4) a. This man — That woman. (4) b. *aftós o ándras — ekini i jinéka.*

Again re possessives, in English, they precede the noun; in Mod Greek on the other hand, the possessive is an enclitic and the article still precedes the noun, as witness:

(5) a. My friend. (5) b. *o filos mu.*

Finally, it should be noted that in Mod Greek, even the non-complementizer relative pronoun is preceded by an article (cf. Kakouriotis (1979)):

(6) *o án9ropos o opíos ynorízi polá (cf. o án9ropos pu ynorízi polá).*

The man the two knows a lot ("The man that knows a lot").

The next step to be taken in this subsection will involve an examination of the definite article within the structural framework of NPs functioning as subjects, object and complement. For the case of article non-occurrence we shall use the commonly accepted term ø, in prose this means zero article.

Uncountable nouns functioning as grammatical subjects and denoting material things are normally without article in English but with article in Mod Greek:

(7) a. Blood is thicker than water. (7) b. *to éma neró δéjínete.*

Thus we can have our first contrastive rule concerning definite articles:

(8) E → Ø
/ -N [-Count, +Concr]
MG → Def Art

Secondly, an uncountable noun representing an abstract idea takes zero article in English but definite article in Mod Greek:

(9) a. Time flies. (9) b. *o xrónos pernái.*

(10) E → Ø
/ -N ([- Count, -Concr]———
MG → Def Art

However, when uncountable nouns are grammatical objects and refer to either material things or to abstract notions, they take zero article in both languages (although there seem to be a few exceptions to this rule).

(11) a. I never take sugar in my tea. (11) b. *poté δe vázo záxari sto tsái mu.*

(12) a. I never expected kindness from you. (12) b. *poté δen perímena kalosíni apó séna.*

(13) E&MG→Ø /—N [—Count, ±Concr]

It should be noted here that things are not so clear, as far as Mod Greek is concerned in connection with the use of the definite article in front of nouns representing abstract notions. Thus, along *apetó sevazmó*, "I demand respect" and *0élo elef0eria*, "I want freedom", we can also have *ayapó tin elef0eria*, "I love freedom" and *θavmázo tin ilikrinia*, "I admire sincerity". It teems that in cases like those above the speaker "concritizes" an otherwise abstract

noun with a modifying phrase which is not overtly expressed. For example "I admire the sincerity that some people have".

Concerning subject complements which are uncountable nouns expressing material things (i.e. *gold*, *silver*, etc.), no article is used in either English or Mod Greek:

(14) a. Water becomes steam when it boils.
(14) b. *to neró jínete atmós ótan vrási.*
(15) E & MG→Ø/—N [—Count, +Concr]

Nouns used in a generic sense are of particular interest to the learner of English. A Mod Greek noun takes an article whether it is in the singular or in the plural; on the other hand, nouns used in a generic sense take an article if they are in the singular in English:

(16) a. The dog is a faithful animal.
(16) b. *o skilos íne pistó zóo.*
(17) E & MG→Def Art /—N [+Count, + Concr, +Generic, +Sg]

Note, however the difference between the two languages when the generic nouns are in the plural:

(17) a. Dogs are faithful animals.
(17) b. *i skíli íne pistá zóa.*
(18) E→Ø
/—N [+Count, +Concr, +Generic, —Sg]
MG→Def Art

We shall finish this subsection with a glance at the proper nouns. These nouns which stand for names of people, countries, cities, towns etc. receive zero article in English whereas they must take a definite article in Mod Greek. (Note some rather important exceptions in English concerning names of seas, rivers, etc. where the definite article is used).

(19) a. England is an EEC member.
(19) b. *i anglía íne mélos tis kinís ayorás.*
(20) a. Martha is a clever girl.
(20) b. *i márθa íne éksipno korítsi.*

Note, however, as far as English is concerned, some particular exceptions. (21) presents a special interest given that proper nouns are normally antecedents to relative pronouns in non-restrictive relative clauses.

(21) The Mary I know is fat and short not tall and thin.
(22) Speaker A: I met Tom Jones in Soho the other day.
Speaker B: You mean *the* Tom Jones!

As a matter of fact Mod Greek has been influenced by this particular use of the article in (22) where it is pronounced in its unreduced form, that is, *ði:* (not *ðə*) and with a rather heavy stress. One can hear sentences in which the article is heavily stressed to express uniqueness, best quality etc., sometimes, however, in an ironical sence (i.e. *íne ó ðief0indís*, "he is *the* manager", *íne í γúna*, "it is *the* furcoat", a furcoat of unique quality.).

Despite the exceptions, we have mentioned, in connection with the English use of the article witnh proper nouns the, rule still applies:

(23) E → Ø
/ — N [+Proper]
MG → Def Art

In the subsection to follow, we shall deal with some very special uses of the definite article in English and Mod Greek for which we cannot provide semantic features as we have done so far. However given that our discussion is informal and descriptive to the best of our ability, we might just as well proceed to talk about those uses.

2.2. Extending the Contrastive Description

Before finishing the article description we will mention some further uses of it that are of particular interest, especially to the learner of Mod Greek.

Let us first mention the case that concerns a special use of the definite article in English. Only in this language, and not in Mod Greek, can a noun denoting a musical intrsument take a definite article if this noun is the object of the verb "play" (Mod Greek *pézo*). Compare below:

(24) a. I play the violin/the guitar/the piano.
(24) b. *pézo vjolí/ki0ára/pjáno.*

Now to the more important part of our description which concerns the Mod Greek definite article. In this language, a whole complement clause can have a definite article as its head:

(25) a. *to óti ipárxi anerjía óli to ksérume.*
The that exists unemployemnt it all we-know
Art.
"We all know that there is unemployment".
b. *to póte θa érθi íne ágnosto.*
the when will he-come is unknown
Art.
"It is unknown when he will come".

How come that a complement clause can take a definite article then? Note that a complement clause is both a noun and a verb. As far as the noun function of such a clause. There seems to be a scale of "nouuniness" which can be seen in the difference between a that-clause and gerundive complement in English:

b. *Did that she was singing arias surprise you?

As it appears above, the gerund clause is "nounier" than the that-clause given that it can invert like any noun in questions (26a), something that the that-clause is unable to do (cf. 26b).

Note, however, that this sentence can become perfect if that-clause the is preceded by such phrases as the fact, the idea, etc.

(26) c. Did the fact that she was singing arias surprise you?

The presence of the definite article (neuter gender, nominative) has an almost similar function: to make the complement clause look "nounier", something which appears to be needed in cases like those of (25), where a topicalization process has taken place. For instance the definite article is more necessary in (25a) above than in (25c) below in which the ticle is more necessary in (25a) above than in (25c) below in which the clausal áject, that is the *that*-complement has not been topicalized:

(25) c. *óli ksérume óti ipárxi anerjía.*

Thus the definite article is needed when the noun function of the complement is more prominent than the verbal function. Compare (25a) with (25c) and notice the fact that the former does not only have a definite article but also a clitic object (the second *to* in that sentence), which is actually coreferential to the topicalized *that*-clause(i.e. *óti ipárxi anerjía.*). This proves better than anything else that the complement clause behaves like any other object NP, hence the justification for the presence of a definite article.

3. Explaining the Crosslinquistic Differences in the Use of the Article

In an interesting article, written in 1976, F. Klein had claimed that there is no a priory reason to accept that the inventory of meanings available in one language should be exactly the same as in another (Klein, 1976 : 417). Our analysis follows the spirit of her comparison of English with the Spanish article. For it appears that there is much in common between Spanish and Mod Greek in what has to do with the use of the article.

As far as English is concerned, the sign ø posits the meaning "identification

not needed" whereas the actual use of the article the will mean "Identification needed and (sufficiently) made in the given context".

In Mod Greek, on the other hand, things appear to be different. More specifically, there seems to be no evidence whatever suggesting that the absence of a definite article is associated with any particular meaning in the way it is in English. In other words, Mod Greek has no explicit sign for "lack of need for identification". But this can imply that the converse also holds true: if there is no signal "identification not needed" there is no signal "identification needed", either. Thus, although the definite article *o* does posit the meaning "identification sufficiently made in the given context" it does not necessarily imply that it was needed, as it always does in the case of *the* in English.

We have already pointed out that although articles are heads, syntactically speaking, they are also empty words coreferential with the entity they modify. Now it happens that this entity either needs differentiating from other-like entities or it does not because it appears in its totality, that is it has a general sense, in which case differentiation is not necessary, as for instance in (7a) repeated below as (1a):

(1) a. Blood is thicker than water.

In this example the entity "blood" is in fact "self differentiating" (cf Klein, 1976 : 418).

In Mod Greek, however, where, as we have pointed out, there is nothing to signal "identity not needed" when the referent is taken in its totality, a similar case of entity will be signaled as something "sufficiently identified", hence the use of the article in (7b), repeated below as (1b):

(1) b. *to éma neró δe jinete.*

Note that our analysis will also account for cases in which both languages want their nouns to have articles as their heads, as in (2) below:

(2) a. The blood that runs in his veins is royal.
b. *to éma pu réi stis üéves tu íne vasilikó.*

In (2a), the article is there because identity is needed and also it has to be sufficiently made within the given context; in (2b), on the other hand, though identity is not needed, the entity has to be sufficiently edentified within theh given context, hence the use of the definite article *to* in the Greek example above.

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NATURAL CATEGORIZATION AND FUNCTIONAL SENTENCE PERSPECTIVE

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In this paper I address the applicability of natural categorization to studies in functional sentence perspective. First (1), I concentrate on the concept of natural category. Next (2), I discuss some work on topics done within the natural, prototype-oriented, paradigm. Finally (3), I advance a feature-weighted model of topic prototypicality in English and Polish.

1. The concept of natural category is an alternative to that of classical category. The contrast between the two is founded on a different understanding of our categorization principles, that is the way in which we perceive the world: the entities and relations obtaining among them. In other words, what is at stake here is the operation of human cognition in general. Accordingly, the scope and weight of the problems concerned far transcends the domain of linguistic explorations. Actually, the appropriateness and applicability of natural categorization to language studies is a matter of derivative considerations. Given the complexity of the issue at hand, the present section will certainly prove allusive and cursory rather than argumentative. Its main purpose, however, is only to point down the fundamentals of natural categorization and their linguistic implications.

The theory of natural categorization questions the basic assumptions of objectivist metaphysics: category membership is determined by objective, necessary and sufficient, conditions, i.e., by way of shared properties; all members of the category have something in common, thus being "equal" to one another; categories have clear, nonfuzzy, boundaries (no degrees of membership are allowed); no external motivation for category inclusion is considred

(e.g. background knowledge or subjective experience). Instead, the theory of natural categorization brings to the fore the role of experiential factors in category inclusion and, among them, human perception, mental imagery, bodily experiences, motor movements, desires and intentions, expectations, personal and social experiences.

Attacks on classical categorization came independently from different cognitive sciences (see esp. Lakoff 1982 a, b). However, the main arguments against the objectivist hypotheses were given by psychologists and, in particular, by Rosch's (1978) empirical studies. Her research can be summarized as follows. Category systems have both a vertical and a horizontal dimension. The vertical dimension concerns the level of inclusiveness of the category — it is the dimension along which the terms like *collie*, *dog*, *mammal* vary. The horizontal dimension concerns the segmentation of categories at the same level of inclusiveness — it is the dimension on which *dog*, *cat*, *car* and *sofa* differ. As for the vertical dimension, Rosch (1978:30) argues that not all possible levels of categorization are "equally good or useful". On the other hand, in order to increase the distinctiveness and flexibility along the horizontal dimension, categories should be defined in terms of prototypes or prototypical instances which contain attributes most representative of items inside, and less representative of items outside, the category. Accordingly, Rosch's findings are often described in terms of (i) basic level results, and (ii) prototype results.

(i) Rosch (p. 32) argues that certain categories are more "basic" than others, which means that they are recognized more rapidly, processed more easily, learned earlier, used more frequently, given shorter names, associated with definite motor activities, etc. These are "basic-level" categories. They locate "in the middle", i.e. between superordinate and subordinate categories; cf. cf. *chair* versus *furniture* and *kitchen-table*, respectively.

(ii) Rosch's prototype results boil down to the following assumption:some members of a category are more representative of it than other members. Thus, e.g., *robins* are more representative of the category BIRD than *chickens*, *penguines* or *ostriches*. The most representative members are called "prototypical". The prototypical-nonprototypical distinction entails the following corollaries. Category membership is determined not by necessary and sufficient conditions but by clusters of attributes that characterize the most representative members. None of the attributes need be necessary or sufficient for category membership. Attributes do not have equal status: normally, some are more important than others for category membership, i.e. they are more heavily "weighted" (in the sense of Bates and MacWhinney 1982:211 — see below). Category boundaries are inexact, i.e. concepts are fuzzy. Category boundaries are, however, conventionally motivated by external, possibly culture-based, factors, that is they associate with "background frames" or "experiential gestalts" (in the sense of Lakoff and Johnson 1980:176f; see also Lakoff

1982a:25). These are the ways of organizing experience into structural, multidimensional, wholes.

By and large, the prototype results suggest that in our perception of what categories are we depend not that much on the objects themselves, but rather on our idealized mental models of those objects, i.e. Idealized Cognitive Models (in the sense of Lakoff 1982a). This means that understanding takes place in terms of entire domains of experience and not in terms of isolated concepts. Any theory consistent with the basic-level and the prototype results may be referred to as a theory of natural categorization or prototype theory.

A linguist of the "naturalist" persuasion purports that linguistic categories are natural, i.e. that they have the kind of structure that conceptual categories do. At this point at least the following facts should be noted:

(i) some categories are gradient, e.g. *tall*, i.e. they have inherent degrees of membership;

(ii) some categories have clear boundaries but show prototype effects (see, e.g. Fillmore's discussion of *bachelor* in Lakoff 1982a);

(iii) some categories are radial, i.e. there are central and noncentral members of the category. It is arguable, for instance, that this is the property of syntactic categories. Namely, the categories that are mapped onto surface form have their semanto-pragmatic underpinnings. However, central constructions are basic in that they contain the most systematic semanto-pragmatic pairings; they are the best (=prototypical) examples of the category in question. Noncentral constructions, on the other hand, are departures from the most representative type. A good case at point is the grammatical subject. Bates and MacWhinney (1982:208), (see also Comrie 1981:101) argue that the grammatical subject in English normally combines topichood with agentivity. Nonetheless adult speakers of English can produce, understand and judge as grammatical a variety of sentences containing, say, nonagentive subjects, as in (1) below:

1. The knife cuts,

nontopicalized agents, as in (2):

2. Jóhn hit the ball, not Fred,

or abstract "entitylike" nouns, as in (3):

3. John's drinking bothers me.

This, they argue, shows that the semantico-pragmatic heterogenity of syntactic classes can be captured best in terms of family resemblance and goodness of membership: some subjects are "better" than others. In other words, the pro-prototype-based paradigm should allow us to get a better understanding of how the various meaning-and-structure-related tensions co-exist in the overall system of the language. Admittedly, it is hard to deny today that as yet the applicability of natural categorization principles to linguistics remains

a matter of cautious optimism; prototype-based explications of sentential topics (see sec. 1 and 2 below) are an instance of such tentative endeavours. Notably, it might be noticed at this point that continuum effects in language have been observed also prior to, and outside, the prototype theory (see, e.g. Austin and Lakoff (forthcoming); Bolinger (1961); Enkvist (1984); Wierzbicka (1980)).

In sum, while ascribing the property "natural" to linguistic categories, we also conjecture that language is part of general cognition, i.e. that is "uses" the same kind of categorization as the mind does in general. Accordingly, we question the autonomy of the syntactic component in language. Instead, we hold that syntax is not independent of meaning, where meaning subsumes the semantics and pragmatics of communication. Lastly, we take the view that meaning and communication are the primary functions of language. It is for this reason that the linguist should try to explain as much as possible about the form in language in terms of parameters of meaning and communicative function. The topic-comment system (functional sentence perspective) is an instantiation of such meaning-bearing factors in grammar.

2. Prototype-oriented discussions of sentential topics gained some momentum from work which put the spotlight on different though not unrelated grammatical phenomena. As already noticed (sec. 1), Bates and MacWhinney (1982) proposed a reinterpretation of the grammatical subject as a natural category anasylable through the prototypes of agent and topic. In essence, their hypothesis is reducible to two basic tenets:

(i) prototypical subjects are both agents and topics,
(ii) subjects are both meaning-based and a grammaticized category.

Under (i) prototypical instances of sentence subjects can be predicted purely on the basis oı meaning, where meaning involves the semantic factors, primarily the case role, and the pragmatic factors such as old information, focus of attention, etc. Under (ii) the inclusion in the category subject is not fully predictable from the properties of agents and topics, but also regulated by language-specific conventions and constraints. By virtue of (i), however, category membership becomes motivated by (even though not predicted from) family resemblance to the most representative members of the category.

Bates and MacWhinney do not see (i) and (ii) as a strong universalist claim though they anticipate that languages should exhibit a general tendency to comply with either of their assumptions (see also Comrie (1981:20, 101)). They emphasize, however, that English "merges agent and topic in most cases, capitalizing on the role of perspective in creating a statistical overlap between these two categories" (op. cit.:204). It is this observation that Van Oosten took a closer look at in her study of subjects, topics and agents in Eng-

lish (1984). Van Oosten's work is — to my knowledge — the first prototype-based attempt to show how the grammatical subject in English is organized in terms of the semantic notion agent and the pragmatic notion topic. Although not centrally concerned with topicalization phenomena, Van Oosten provided an interesting contribution to a new, "unified", view of sentence topics. The present section takes stand to some of her proposals on issues of immediate relevance to my concern here.

For Van Oosten sentential topics associate with the following characteristics (p. 325):

4. (i) the prototypical topic is what the speaker is talking about,
   (ii) the prototypical topic is the focus of the speaker's attention,
   (iii) the prototypical topic is also the focus of the hearer's attention,
   (iv) the prototypical topic is the focus of the speaker's interest,
   (v) the speaker takes the perspective of the prototypical topic,
   (vi) the prototypical topic is concrete, visible, and present in the speaker's immediate environment,
   (vii) the prototypical topic is also present in the hearer's immediate environment,
   (viii) the reflex of the prototypical topic in the sentence is referential and definite,
   (ix) the prototypical topic is the primary of the sentence (see below),
   (x) the prototypical topic is a basic-level topic
   (xi) the prototypical topic is a salient participant in a discourse-topic schema or scene, and a human being.

At the outset, a few words of comment. By positing property (x), Van Oosten assumes that topics could be categorized in a way analogous to the natural categorization of objects proposed by Rosch (1978). Namely, there are superordinate, basic-level and subordinate topics, illustrated by (a, b, c) of (5) respectively:

5 a. Let's just forget *the whole thing*
   b. *Joan* isn't coming
   c. *My hand* hurts
   (Van Oosten op. cit.:7).

Van Oosten assumes that such a categorization of topics has a natural correlate in the way in which we perceive things and talk about them. Thus, the basic-level topic is a participant part of a broader focus of interest, e.g., a commercial-event schema will normally entail participants such as the buyer, the seller, the goods or the money. On the other hand, it is natural for a basic-level participant to activate its own parts or aspects, e.g., the mentioning of John could entail John's clothes, his body, etc.

Property (v) has to do with syntactic reflexes of topics. More specifically, it involves sentence initial position and subject selection rules which in English serve as a means of perspectivizing. At this point (p. 58) Van Oosten admits that (v) is dependent on the "ecological niche of the subject", i.e., the place the subject occupies in the structure of the language. Nonetheless, she argues (p. 68) that, on the whole, the connection between the grammatical subject, sentence position, and the topic is remarkably consistent across languages even if not universal.

With (viii) and (ix), Van Oosten captures semantic attributes of topics which she likewise interprets in terms of language-independent preferences. It is (ix), however, that may call for a few words of explanation. Van Oosten (p. 10) defines primary as "the NP holding the semantic relation highest on the semantic case role hierarchy in a particular sentence". Cf. (6) below:

6 a. The cat is on the mat
  b. Harry arrived
  c. John hit the ball
  d. The farmer killed the duckling for his wife
  e. Harold loves Marsha,

where the primary is a Patient noun (a), an Agent noun (b, c, d), and an Experiencer noun (e), respectively (ibidem). Obviously enough, Van Oosten works within a case-grammar framework originally proposed by Fillmore (1968), and consisting in the specification of semantic roles such as Agent, Objective, Instrumental, etc.

The number and type of topic properties specified by Van Oosten invites at least the following observations. The list does justice to the main factors relevant in topic selection. At the same time it shows a strong experiential skewing. More specifically, it tallies well with what people generally describe as the egocentric bias in discourse (see esp. Givon (1976); Kuno (1977); Lyons (1977:510); Mathesius (1975:101-2); Zubin (1979)). Consider the following tendencies:

(i) humans speak more about humans than about non-humans — human >non-human,
(ii) they talk more about more involved participants than about less involved participants — ag>dat>acc,
(iii) the speaker tends to be the universal point of reference, i.e. speakers tend to talk more about themselves — 1st person>2nd person>3rd person,
(iv) the speaker tends to proceed from definiteness — definite>indefinite.

Among Van Oosten's properties the following are most experientially loaded: (ii), (iii), (iv), (vi), (vii), (x), (xi). Regrettably, however, Van Oosten's discussion

lacks arguments that might shed more light on the features in question. She actually does not go beyond the enumeration of those properties, which may be indicative of their derivative character. In anticipation of my own discussion of those phenomena, I assume that the features concerned are either too weak or too restrictive from the point of view of topic prototypicality. Notice, for instance, that (ii) and (iv) are possibly redundant in the presence of (i): what the speaker is talking about should simultaneously be in the focus of his attention and/or interest. Van Oosten (p. 46) views (ii) and (iv) as "natural consequences" of (i). Next, given the cooperative nature of discourse production, the speaker usually chooses to talk about what he assumes to be already in, or easily accessible to, the hearer's consciousness and/or attention (iii). Properties (vi) and (vii) are too restrictive in the face of actual communication: verbal interaction does not involve all that often elements ostensibly present in the interlocutors' environment. Finally, (xi) seems redundant for its dependence on (i), (ii), and (iv): the very fact that the speaker is talking about something proves that the something is salient enough to catch his attention.

This being said, I shall argue for a linguistically (rather than experientially) oriented model of topic prototypicality in English and Polish; thus I fully recognize the relevance of the remaining properties ((i), (v), (viii) and (ix)) on Van Oosten's list. This is not to say that I oppose an experiential account of topic prototypicality. On the contrary, I see the need for more theoretical and practical work along those lines. Today, it is hard to deny that respective factors have a bearing on how topics are established and maintained in discourse.

On the other hand, Van Oosten acknowledges the linguistic determination of the English topic, and namely, its affinity with the grammatical subject; as a matter of course, the subject-topic-agent conflation is her programmatic point of interest. Ultimately, she reformulates Bates and MacWhinney's hypothesis to the following effect: in English "in basic sentences, the prototypical subject is both a prototypical topic and a prototypical primary" (p. 10).[1]

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[1] Van Oosten's basic construction is a stricter version of Keenan's (1976:307) basic sentence; (b ii) states the additional constraint proposed by her (p. 10):

"For any language L,

a. a syntactic structure x is semantically more basic than a syntactic structure y if, and only if, the meaning of y depends on that of x. That is, to understand the meaning of y it is necessary to understand the meaning of x.
b. a sentence in L is a basic sentence (in L) if, and only if,
   (i) no (other) complete sentence in L is more basic than it,
   and
   (ii) the sentence exhibits the basic case frame of its verb".

In contrast to the basic sentence, the subject of a special construction (i.e. a non-basic sentence) is paired with a set of nonprototypical topic and/or primary properties. For instance, the subject does not meet the prototypical topic properties in, e.g., existentials or it-clefts, whereas the normal assignment of topic to the primary does not take place in, e.g., Tough constructions or passives. Van Oosten concludes that "most" special constructions in English exist in order to "vary the assignment of topic from primary to something else" (p. 324).

Van Oosten does not leave it unnoticed that in basic sentences in English the prototypicality of the primary is a more central characteristic than the prototypicality of the topic. Cf.:

7. (What happened to the stopsign?) *A car* knocked it over (p. 17),
8. *A secretary* comes by here every morning to get him a cup of coffee (p. 18),

where both subjects convey essentially new information (on rhematic subjects in English see esp. Firbas (1957:87, 1966:248, 1974); Hajičová and Sgall (1982:27); Thompson (1978:26); see also Bates and MacWhinney (1982:204)). This coincidence between newness and subjecthood — not at all infrequent in English — may be explicated within the prototype paradigm as follows: nonprototypical but still acceptable basic sentences are likely to miss one or more of the prototypical properties of topic rather than those of the prototypical agent.[2]

In sum, Van Oosten's may be considered a notational variant of the earlier conceptions:[3] progressions from prototypicality on the part of the topic indicate its *de*crease in givenness (contextual anchoring), i.e., *in*crease in communicative dynamism, to use the previous terminology. Consequently, a nonprototypical topic makes a worse hinge with regard to the preceding discourse. In other words, it is not sufficiently "dedynamized". Van Oosten departs from

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Accordingly, (1a) and (2a) are basic, whereas (1b—c) and (2b) are not:

1 a. John hit the ball
  b. The ball was hit by John
  c. Did John hit the ball?
2 a. John drove the car to London
  b. The car drives easily,

where *the car* in (2b) violates the rule that in the basic sentence the prototypical subject is also a prototypical primary, i.e., agent in the sentence in question.

[2] Van Oosten adopts Lakoff's (1977) prototype-based account of agentivity.

[3] I have in mind, first of all, the Czech school of FSP. See e.g. Daneš (1964, (ed.). 1974); Firbas (1957, 1964a, b, 1966, 1979); Mathesius (1947, 1975); Sgall et al. (1973). See esp. Halliday (1967); Cf. also Chafe (1976); Enkvist (1973).

the previous accounts in how she conceives of the scope of topicality. Her non-prototypical instances of topics subsume cases when the raising to topic is performed in order to achieve a better contextual match (e.g. the passive), as well as cases when topic properties are ascribed to elements which were rhematic under the previous interpretations (e.g. subjects in existential constructions). By and large, the concept of fading prototypicality allows Van Oosten to disguisedly handle an information-dependent explication of sentential topichood. This is so though she never explicitly acknowledges the Given-New dichotomy underlying the topic-comment system in language; in fact she reduces the system to just one variable, and namely that of the topic (for more discussion see Duszak (1987)).

3. In this section I advance a different, though not unrelated, interpretation of sentential topics. To start with, I raise the appropriateness of the prototype theory for analyses of topicalization phenomena in language. Next, I outline a feature-weighted model of topic prototypicality in English and Polish that is linguistically rather than experientially biased. Finally, I tentatively dismember and illustrate my understanding of the idea of "naturalness" in topic selection and identity in the two languages.

The up-to-date research into topicalization phenomena in language (see Note 3) has led, one way or another, to a simple though somewhat disheartening conclusion: sentential topics are determined in terms of as-a-rule-of-thumb association with a number of linguistic and nonlinguistic features, rather than in terms of necessary and sufficient conditions. At least the following dependencies have been pointed out: topics tend to locate in sentence initial position (or in the leftmost part of the sentence), they normally convey old (contextually derivable) information, and associate with the grammatical subject. None of these tendencies, however, holds true on a regular basis. Moreover, they are often a matter of degree, i.e., they may be deflected for structural requirements of different language systems; at this point a sweeping distinction between "pragmatic" and "grammatical word order languages" is sometimes invoked (cf. esp. Firbas (1964b) and Thompson (1978)). It reads as follows: the operation of the pragmatic principle (esp. the initialization of old information) may be eased or else restrained due to the grammatical format of a particular language, as in, e.g., Polish and English, respectively. At the same time, however, it was also shown that word order typologies are a matter of degree rather than yes-or-no choices (see esp. Comrie (1981:43); Enkvist (1984:51)). By and large, contrasts in functional sentence perspective are founded on a complex interaction of a number of factors including our general inferential capacities and knowledge of socio-linguistic conventions in communication.

At the same time, however, the up-to-date discussions of topicalization phenomena in English and Polish have supplied sufficient evidence that people

tend to approach the concept of topichood with preconceived ideas about the role of: context, semantic structure, intonation and position in the sentence. Arguably, the "better" the topic will be, the more it approximates at a clustering of expectations in respective domains. This is the case even though sentence initial position, old information, semantic primariness (in the sense of Van Oosten 1984) or deaccentuation do not determine topics in an absolute manner. In view of what has been said, I believe that this nondeterministic nature of sentential topics is well suited for accommodation within a prototype-oriented framework. For that purpose I put forward a conception of a feature-weighted model of topic prototypicality, i.e., one that allows the different attributes of topics to be ranked for importance relative to one another as well as with respect to a given language ecology. I shall limit myself here to English and Polish only.

At this point it is essential to realize how the idea of a feature-weighted model relates to our discussions in sections 1 and 2. Indeed, with the adoption of the model in question I subscribe to a weaker version of the prototype theory. Cf. Bates and MacWhinney (1982:211): "As certain features increase in their weight or importance in making categorization decisions, a prototype model may come to resemble a criterial attribute model. Hence we can describe prototype structures and criterial attribute structures as two ends of a continuum with feature-weighted models in between". To my mind, the most heavily weighted property of topics is the notion of sentential "aboutness". This means that topics, understood as *clusters* of properties, are still *definable* in terms of "aboutness": the topic is "what is being talked about", whereas the comment is "what is being said about the topic". At the same time, however, the various attributes of topics (and comments for that matter) may be differently weighted among themselves and in different languages.

By and large, the bottom line of the present understanding of the topic-comment system is that, when using language, speakers have topics, i.e., the sentences they are producing are "about something". Given this, I not only assume that people have intuitions as to what sentences are "about", but also that those intuitions are monitored by a number of clues intercepted in the act of communication. Namely, there seems to exist a conventionalized way of "packaging" information in the sentence which — to a great extent — has to do with the cooperative nature of verbal interaction. In other words, the speaker tends to reinforce the addressee in his attempts to locate the idea that is being communicated to him. The speaker does so by making use as consistently as possible of the same repertory of linguistic markers. Ultimately, the intuitive idea of sentential "aboutness' becomes interpretable through our access to, and recognition of, a number of parameters of form and meaning. More specifically, I assume that the concept of the topic in English and Polish is primarily associable with the following features:

9 a.
(i) informational status
(ii) semantic primariness
b.
(iii) position in the sentence
(iv) accentuation pattern,

where (a) have to do with meaning (conceptualization of meaning relations in context) and (b) with the (formal) realization of the topic in the structure of the sentence. Accordingly, topics are "better" if they associate with an element that

10. (i) conveys old information
(ii) is the primary of the verb
(iii) locates in sentence initial position, and
(iv) has a non-nuclear stress.

Incidentally, (iii) brings in the problem of morphological case markings in Polish.

On the other hand, the comment, or its focal part in the case of extended comments, normally combines with an element that

11. (i) conveys essentially new information
(ii) is a non-primary of the verb
(iii) locates in sentence final position, and
(iv) bears sentence stress.

This is not to say that (10) exhausts the considerations pertaining to accessibility to topichood; the list might as well be supplemented or revised. It is to argue though that the criteria specified under (10) above reckon most closely the array of facts indicative of how communicants tend to code, and decode, the concept of sentential aboutness. It is also to imply that the clarity as to what the topic is fades away in sentences in which there is no single element that meets all of these conditions. Accordingly, progressions from prototypicality can be translated into deviations from (i—iv) of (10) on the part of an element eligible for the status of the topic.

The feature-weighted model outlined above spells out only the general prerequisites for the most representative topic in English and Polish. Given, however, a typological disparity between the two languages, we might raise the following assumptions:

(i) topics in English and Polish weight differently the properties indicative of prototypicality,
(ii) topics in English and Polish differ at progressions from prototypicality

Both (i) and (ii) hold true for at least the very good reason that the topic-comment system interacts with the case system (in the sense of Zubin 1979), i.e., the overall network of dependencies between the structural options available in a given language and the array of semantic case relations that they service. This could mean that the way "aboutness" is established in the sentence is not independent of how the expression of various participant roles has stabilized in the structure of the language.

In the remainder of this section I shall bring to attention some advantages of a natural, nondeterministic, account of sentential topics. It has been argued that the central (most representative) instantiation of sentential topichood in English and Polish involves initialization of "old" grammatical subjects in end-focus sentences. Cf. *she* and *the children* in the English examples below:

12. (Mary went into the room.) She put the keys on the table (and turned on the light)
13. (The girls had been playing store with John for a few hours. Despite the late hour they would not stop the game. In the end,) the children had their toys taken away and were sent to bed.

With the use of such topics the speaker attains a chain effect, and thus easily signals his (communicative) focus of attention. Arguably, the formal realization of the topic plays here a role in our understanding of topic continuity: namely, it has to do with the ease of text processing. It has been shown, for instance, that the maintenance of a given coreferential identity over a stretch of text is an indication of the relative importance of the concept in the sequence: the sequence is "about" the concept (for some discussion see, e.g., Clements (1979); Givon (1983); Kieras (1981)). Incidentally, in Polish prominence of this kind is often obtained through topical compression: the topic is marked then only on the form of the verb. Cf. (12'):

12'. (Maria weszła do pokoju). Położyła klucze na stole (i zapaliła światło) — Mary_{nom} went into room. Put_{she} keys_{acc} on table and $\text{turned-on}_{\text{she}}$ $\text{light}_{\text{acc}}$ —

At the same time, this nondeterministic approach to topicalization allows us to account for cases when the participant-continuity in discourse is achieved outside the subject-based paradigm. Cf. (14) and (15) in English:

14. (We certainly expected more boys to join in. Eventually,) there were only five of *them*
15. (I stretched my legs and looked around.) Beside *me* was sitting a young man with a red moustache,

where *them* (they) and *me* (I) function as topics, respectively. These are instances of oblique and sentence noninitial (though contextually derivable) topics in English.

As regards English, the prototype model does justice to the natural disposition of the topic to conflate with the grammatical subject. Accordingly, it acknowledges the fact that the subject has earned a considerable pragmatic stability. At the same time, however, it affords enough flexibility to free topicalization from its dependence on subjectivization. This is does by admitting the existence of non-subject topics. By and large, taking for granted that topics have a share in how relevance and coherence are established and maintained in discourse, it is paramount to investigate into the pragmatic appeal and grammatical determination of such noncentral realizations of the category in question.

Next, it is a natural consequence of the feature-weighted model above that old information is not a necessary or sufficient condition for topics: an element conveying essentially new information may nonetheless be chosen as the topic of the sentence.[4] In other words, the bottom line of the assumption that speakers (and sentences for that matter) have topics is that in search for the topic we examine sentence elements for goodness of membership in the category; topic selection is then, in part, an eliminatory procedure. With the lack of "good" candidates, i.e., those bearing the old information property, we all the same construe topics with partial pattern matching: the topic conveying new information is a case at point. Cf. *bus*, *doctors* and *girl of twelve* in (16–18), respectively:

16. (....) Here comes the bus
17. (She felt reassured and almost comfortable.) Doctors make mistakes though. (She mustn't think about it now.)
18. (You'd better take a company.) A girl of twelve is missing. (It is not safe here anymore)

As already mentioned, the character and weight of individual topic parameters varies depending on the type of the language. This means that the structural format of a given language constrains the ultimate model of topic prototypicality. It also has a bearing on the type and scope of topical markedness, i.e., progressions from prototypicality. Alternatively, we may say that for the speaker of a language the idea of sentential aboutness is not con-

[4] I shall not deliberate here on what is old and what is new information. Suffice it to say here that my own understanding of the informational status of an element resides in two general assumptions. First, every sentence conveys some new information. Second, the communicants are able to pinpoint the new information in, or abstract it from, the message that is being conveyed. Thus conceived newness involves clearly the speaker's communicative intent rather than an objective estimate of what is contextually derivable. In other words, rather than associate newness with some "surprise" factors, we look in the sentence for what constitutes its informational core and thus justifies the occurrence of this sentence within a given communicative set-up.

strued independently of how the expression of meaning relations (esp.semantic case roles) has stabilized in the structure of the sentence.

With reference to English and Polish, at least the following facts should be borne in mind. It goes without saying that the pervasiveness of the grammatical subject in English has an essential impact on the overall organization and operation of the topic-comment system. In effect, the grammatical subject stands out as a most salient element in the structure of the sentence. Polish, on the other hand, is not governed by the same degree of grammatical discipline. This has to do, first of all, with the theoretical feasibility and actual pervasiveness of the subjectless sentence. These are constructions with no (nominative) subject-verb concord. The sentence type in question is relativized to receptive/experiental participants coded in the dative (or accusative) morphological case. Cf. the Polish equivalent of *children* in (13') below:

13'. (....) *dzieciom* zabrano zabawki i ....
— $\text{children}_{\text{dat}}$ $\text{taken}_{\text{was}}$ toys_{acc} and —
Cf. also *me* in (19) and (20) below:

19. (Czuję się fatalnie.) Słabo *mi*
(I feel awful.) — weak_{adv} me_{dat} —
I feel faint

20. (Przestańmy.) W tych butach źle *mi* się tańczy
(Let's stop it.) — in these shoes badly me_{dat} itself (it) dances —
I cannot dance in these shoes.

Arguably, in the absence of the nominative the dative/accusative morphology has stabilized in the expression of the "experiencing ego". This, in turned, has contributed to some erosion of the pragmatic position of the subject in general (see my discussion of the dative and nominative modes of pragmatic perspectivizing in Polish in Duszak (1987). In essence, topic prototypicality in Polish is monitored by structural factors to the effect that it depends on whether the sentence belongs to the nominative-subject or the subjectless sentence type.

Finally, a natural explication of the topic-comment system leaves room for some "experiential" considerations while analysing our decisions as to how the communicative accents are distributed in the sentence. Notice, for instance, that topic and comment are in fact comparable and therefore competitive with respect to each other. The reason is that they constitute two pragmatically prominent choices in clause-level communication, that is salience separates both of them from the rest of the material in the sentence. The scope of the problem varies with the amount of topic specification. In the event of "low specificity" or "default" topicalization (both terms attributed to Bates and MacWhinney 1979:181-2), the trade-off between the topic and the comment in accessibility to salience is a matter of lesser conflict.

This is what happens when the topic is lexicalized pronominally: by their very nature, pronominal elements are topical yet also too "weak" to challenge prominence inherent to commentization. The problem becomes particularly acute when a new subject in sentence initial position is followed by some topical material (demotion of pronominal elements is then quite frequent). Cf.:

21. (He may be gone by then) A jób was offered to him in Richmond
22. (The thing does not work.) Some jérk must have fiddled with it. (The flap is broken.)

The sentences in question include elements with a strong topical potential *him* (he) and *it*, respectively. The points that are being made in these sentences are paraphrasable as (21') and (22') below, where topics have been singled out:

21'. He — he was offered a job in Richmond
22'. It — it must have been fiddled with by some one. That some one was a jerk.

Alternatively, a different solution is feasible from the communicative point of view. "Aboutness" could be delegated to the fronted nominal. This could get support from the fact that the nominative subject, especially under primary stress, could assume priority for the "focus of attention" status (also in Polish). My own position at this point is that the presence of an explicitly focal subject in sentence initial position does not subdue the topical disposition of, e.g., a pronominal or definite expression especially if this disposition is motivated by the element's context continuity and/or its perspective-taking capacity. This amounts to saying that "badness" of topics is a function of disrupted clarity in the distribution of the two categories: topic and comment; it happens, for instance, when there are mixed signals as to where to draw (linguistically and/or cognitively) the demarcating line between what is being talked about and what is being said about that something.

Most importantly, however, problems of this kind raise the relevance of discourse strategies in the organization of the topic-comment system in language. Namely, there seem to exist discourse types which are founded on focus (comment) elevation. This often leads to topic "suppression": the topic need not be pragmatically highlighted so it is subdued. In English, this may result in its desubjectivization and de-initialization.

To conclude, in this paper I discussed the applicability of natural categorization to studies in functional sentence perspective in general, and to analyses of sentential topics in particular. I argued that this approach accommodates well the non-deterministic nature of the phenomena in question. It also leaves room for language specific variation in their realization in the sentence.

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CONDITIONALS AND CONCESSIVES

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A number of studies concerning conditionals note their affinity to other types of adverbial clauses: of cause, of reason, of time, or of concession. In the present paper I will propose an analysis of these conditional sentences in which *if* is either overtly accompanied by *even* or understood as a combination of *if* and *even*. I will refer to them as concessive conditionals.

The suggestions discussed below have been formulated on the basis of data drawn from two languages, English and Polish. Since, however, the differences between realizations of concessive conditionals in English and in Polish are not striking, the main arguments will be exemplified only in English and some comments on the peculiarities of Polish will follow.

The most important question in interpreting concessive conditionals concerns the way they differ from regular sentences with *if* as a conjunction. Before we come to tackling that problem, however, we have to state our main assumptions concerning the interpretation of conditionals, as well as the interpretation of *even*.

In the discussion to follow we will make several assumptions concerning the character and interpretation of conditionals. I have argued in favour of such a framework elsewhere and I will thus use it here without further discussion. The first claim (also expressed by Van der Auwera 1986 and Sweetser 1984) is that conditional protases express sufficient conditions for their apodoses. I will further assume that "sufficient conditionality" can function on three levels, i.e., in other words, that conditionals can be interpreted in three different modes, with emphasis on the word "interpreted". This is because the mode of interpretation is established pragmatically and the same sentence can be understood in terms of more than one domain. The basic, prototypical level is the level of facts and states of affairs expressed by p and q. On this level the relation between the antecedent and the consequent

is that between facts or states of affairs in the real world, that is, between, as Lyons (1972) puts it, second order entities. We will thus refer to such relations, and in the majority of cases these are relations of cause and effect, as second order relations. Relations of the second level hold between propositions (third order entities), and they reflect steps in an inferential chain of reasoning; the protasis gives the premise, the apodosis the conclusion. The sentences of the third level, which I will refer to as conversational, have protases which qualify felicity, appropriateness, or assertibility of their apodoses.

As regards the analyses of *even* itself, most of them share the scalar interpretation of this item (see Fraser 1969, Horn 1969, Fauconnier 1975a and 1975b, König 1986). The one we will follow here (Kartunnen and Peters 1979) claims that what *even* contributes to the interpretation of the sentence are two conventional implicatures: an existential and a scalar one. For a sentence such as *Bill likes even Mary* the implicatures can be spelled out as follows:

Existential: *There are other x under consideration besides Mary such that Bill likes x.*

Scalar: *For all x under consideration besides Mary, the likelihood that Bill likes x is greater than the likelihood that Bill likes Mary.*

In her 1984 dissertation Sweetser argues for an interpretation of *even if* which combines the sufficient conditionality thesis with the scalar interpretation of *even*. She claims that the protases of concessive conditionals represent conditions which are extremes of the scales of possible unfavourable conditions. However, such conditions are still sufficient for their apodoses to be fulfilled. As Sweetser puts it: "Y will occur whatever happens; since nearly all other circumstances are more favorable to Y than X is, Y will almost surely occur" (1984:210).

Sweetser's interpretation of *even if* has several advantages: it captures the scalar character of *even* and upholds the sufficient conditionality thesis at the same time. It seems, however, that it misses some points and oversimplifies others.

Firstly, I want to oppose the view common to all the interpretations of *even if* that I am familiar with, namely, that concessive conditions constitute poles of the implied scales. Concessive conditions do not have to be extreme, their ranking high on the scale notwithstanding. I admit that there are situations when the speaker stretches his imagination to the extremes:

(1) *I'll get him if it's the last thing I do*[1]

but such statements are usually produced as certain 'figures of speech' and not as realistically evaluated conditions.

[1] Examples (1), (15), (16), (17) are taken from Sweetser (1984).

Also, I am not convinced that *even* has to be associated with an extreme of the scale. In a sentence such as *Bill likes even Mary* Mary is certainly seen as a highly unlikely object of Bill's nice feelings. However, she is not necessarily the top of the scale, for one can also say *Bill likes even Mary, though I admit she is not the worst of the gang* without falling into a contradiction connected with an attempt to cancel a conventional implicature. The same seems to hold for sentences with *even if*. Consider the following sentence:

(2) *I won't work overtime even if they pay for it.*

The speaker does not necessarily assume paying to be the extreme of what an employer can do to make people work overtime. It can be seen in the possibility of appending the sentence with another one, such as *I will, though, if they give me an extra day off.*

One can of course defend the 'extreme' idea by saying that this is established by the context, but there does not seem to be any real need for referring to the extremes. I assume that the overall interpretation will not suffer if we claim that conditions expressed by *even if* clauses are '*expected to be sufficient*'. In a situation such as the one described in (2) it is assumed to be sufficient for the employer to make a financial offer to ensure overtime work. More examples will be given below.

We should also note that the scales applicable to concessive conditionals are not necessarily scales of unfavourable conditions. It can be claimed that the condition expressed in the subordinate clause of (3) is indeed unfavourable:

(3) *I'll go hiking even if it rains,*

the term can also be stretched to cover (4):

(4) *She wouldn't marry me even if she loved me.*

But in both cases the scale implied is that of what is normally "favourable" to q; the condition expressed in p is not selected from among other unfortunate circumstances, it is contrasted with the fortunate ones. A similar observation is made by König in reference to the invited concessive interpretation of conditional questions. König explains this phenomenon in terms of Gricean maxims of cooperative conversation, and assumes that "speaker and hearer may have a certain opinion about the normal relationship between the eventualities expressed by p and q" (König 1986:238).

The contrast between concessive conditions and "normal" relations between p and q is clearly seen in Polish sentences such as *Nawet gdyby mnie kochała, też by za mnie nie wyszła* where the connective *też* (*also*) implies the reference to the "normal" situation whereby girls do not marry boys only if they do not love them.

I suggested above that concessive conditions are expected by the speaker to be sufficient. It remains to be seen, though, what they are expected to be

sufficient for and what is their relation to the apodosis. Let us consider examples (2), (3), and (4) above ((1) will be disregarded for the moment and we will come back to it later). Their protases express conditions which should be sufficient for the *non-occurrence* of what is given in the apodoses, but turn out not to be. That is, getting paid for overtime work should be sufficient for the employee to agree, but it is not; people usually do not go hiking if it rains, but the speaker of (3) decides to go anyway; girls usually want to marry the ones they love, but the subject of (4) still refuses.

Presumably, then, concessive conditionals invoke negative interpretation on two levels. On the one hand, what seems to be negated is the expectation of the condition's being sufficient (that is, perhaps, what has so far been described as surprise, opposition, or some such). On the other hand, the condition is expected to be sufficient for the occurrence of some fact or state of affairs which does not eventually occur, thus rendering the condition insufficient. Thus what is stated in the apodosis is the opposite of what the condition was expected to be sufficient for. In other words, the fact that the condition appears to be *not* sufficient results in the *non*-fulfilment of what was dependent on it, whether that meant causing something to happen or preventing it from happening.

The two advocates of Sufficient Conditionality Thesis mentioned above (Van der Auwera 1986, Van der Auwera 1985, and Sweetser 1984) claim that concessive conditions are sufficient conditions in the same way in which "normal" conditions are. What they mean is that a sentence such as

(5) *I won't go even if you go*

has to be interpreted to the effect that your going is, all things considered, a sufficient condition for my not going. In other words, they claim that it expresses the same type of conditionality as:

(6) *I won't go if you go.*

Such a position certainly stands counter to the suggestions formulated above.

I believe Van der Auwera's and Sweetser's position to be questionable for several reasons. First of all, the kind of antecedent/consequent relation we find in (6) is not present in its counterpart with *even*. Example (6) will probably receive a second order interpretation, i.e., it will be understood to the effect that in the real world the fact of my not going will depend on the fact of your going. The relation between the facts will presumably be seen as a cause/effect one; your going will result in (or will cause) my not going. This part of the interpretation will be lost if *even* is introduced in front of *if*. The fact of 'my not going' can no longer be seen as in any way dependent on the fact of 'your going', let alone being caused by it. On the contrary, the speaker will not pay attention to his interlocutor's decision and simply not go.

Apparently, what Van der Auwera and Sweetser really refer to when they talk about sufficient conditionality in such cases is the observation that the presence of *even* does not affect the propositional content of the antecedent and the consequent in separation. In other words, they note that in (5) as well (6) you will go and I will not.

There are, however, other forms of contrast between sentences with *if* and *even if* which might tell us something about the relation between the two conjunctions. Let us consider (7), (8), and (9):

(7) *She would do it if she knew how.*
(8) *She wouldn't do it even if she knew how.*
(9) *She would do it even if she didn't know how.*

Example (7) specifies a sufficient condition for her to perform the task; (8), on the other hand, contradicts (7) by questioning the sufficiency of the condition; finally, (9) states that the non-fulfilment of the condition will not suffice to prevent her from doing what she is supposed to.

The next question to be considered is whether concessive conditionals can be interpreted in terms of the three levels mentioned in the introduction. As regards the level of second order entities, we have already seen (recall examples (5) and (6)) that causal relations cannot be expressed by the antecedents and consequents of concessive conditionals. Similarly, the presence of *even* apparently breaks chains of premises and conclusions. Consider:

(11) *If the post office is closed, it's past five o'clock.*
(12) *It's not five yet, even if the post office is closed.*

In (11), the inference about the time is drawn from the premise given in the protasis. Example (12), on the other hand, states a fact which stands counter to what one can conclude from the antecedent. In other words, the protasis spells out a premise which should give sufficient grounds for concluding that it is already past five, but actually does not.

Presumably, then, concessive conditionals can indirectly refer to sufficient conditions on the level of second and third order entities but one cannot claim their protases and apodoses to be in a second or third relation. In a classical second order conditional the protasis specifies causes of the result given in the apodosis; in an inferential conditional its p and q are premises and conclusion respectively. With *even if* it is no longer the case; the content of q does not result from p, but, on the contrary, from some other condition whose fulfilment is sufficient.[2] Similarly, the consequent of a sentence such as

[2] It is worth noting that in some cases the situation is totally reversed: the apodosis gives the cause and the protasis the result (consider *I'll climb that mountain if it kills me*).

(12) is not a conclusion, but an independent assertion, made regardless of what should apparently be concluded. Consequently, if concessive conditionals can be claimed to be causal or inferential it is with regard to cause-effect chains and inferences they refute.

Concessive conversational conditionals seem to be plausible, however. Consider examples such as the following:

(13) *Mary is already on her way here, even if you don't want to hear about it*
(14) *Where have you been all night, even if it's rude to ask.*

The sentences are concessive counterparts of conditionals such as *Mary is already on her way here, if it will satisfy you to know it* or *Where have you been all night, if it's not rude to ask*, in which the speaker spells out the conditions under which the assertion (or question, or any other speech act) is felicitous. Examples (13) and (14) can be interpreted parallelly to the concessives analysed above: for instance, X's unwillingness to listen to Y's revelations should be sufficient to stop Y from saying anything, it turns out, however, to be insufficient to overcome Y's talkativeness; (14) can be interpreted along the same lines. It should be noted, however, that conversational relations appear in concessive conditionals more readily than others because the apodoses of such sentences are to a large extent independent. The conditions expressed in their protases are predominantly hedges and politeness devices.

The above considerations refer to the concessive conditionals in their full form, i.e., with the word *even* overtly present in the sentences. There are, however, conditionals which are interpreted as concessive even though *if* is their only surface conjunction.

Not all of the *even if* sentences can retain their concessive interpretation without *even* being overtly present in the sentence. If we remove *even* from a sentence like *Even if Mary goes, I won't go* we will obtain a regular conditional which cannot be interpreted concessively.

On the other hand, there are sentences which can be interpreted either as concessives or as regular conditionals. Sweetser notes correctly that the choice of the interpretation is based on pragmatic factors and that a sentence such as

(15) *I would marry you if you were a monster from Mars*

can be interpreted as a regular second order conditional if uttered by a girl who is dreaming about creatures from the outer space, and acquires a concessive meaning if the speaker is so determined to marry the addressee that she is ready to put up with his antennae.

It should also be noted that there are sentences for which it is difficult to find a context favourable to the non-concessive interpretation — our

example (1), as well as the sentence given in Footnote 2, which we repeat here as (16), seem to be among them.

(16) *I'll climb that mountain if it kills me.*

It is of course not inconceivable to consider being killed a sufficient condition for climbing a mountain, but such a situation is highly improbable to say the least. It is precisely due to the improbability of this interpretation being the correct one that the concessive sense strikes the hearer as the intended one. As we noted above, sentences such as (1) and (16) have protases which are used rhetorically rather than literally, and their main function is to reinforce the speaker's determination to do something. Among other things, this is reflected in the fact that such sentences are fairly resistant to changes of person and tense. *You'll climb that mountain if it kills you* strikes me as odd, for when getting killed is considered, one should rather speak for oneself. It also seems awkward to say *I got him if it was the last thing I did, I would have climbed that mountain if it had killed me*, etc.

Thus, even though the content does determine the interpretation, the one that requires less mental effort, or, in other words, calculating a smaller number of implicatures, will probably be selected. Consequently, an *if*-clause will be interpreted concessively if its most natural interpretation (in a given context) excludes its expressing a sufficient condition for whatever is given in the apodosis. On the other hand, the concessive meaning will not arise if the protasis can simply be interpreted as a sufficient condition for the apodosis. In some cases, both interpretations will be possible.

Haiman (1986) notes that concessive meanings arise mostly in those conditionals in which the protasis follows the apodosis; otherwise the protasis is marked with a very specific intonation, which Haiman calls "a contemptuous squeal". Haiman's explanation of the order restrictions is that the sequence of clauses reflects a sequence of events, suggesting a causal relation between them. Thus a protasis-apodosis order without a squeal would suggest a "normal" conditional interpretation.

Haiman's solution seems very tempting: concessive conditionals are ruled out where the "normal" ones properly belong. However, several arguments can be raised against it. Firstly, it is not necessarily true that the apodosis-protasis order is less typical for conditionals than the protasis-apodosis one. It is certainly more basic in terms of what Haiman assumes about conditionals — that their protases constitute topics of utterances (see Haiman 1978). And it is, indeed, often the case that a sentence-initial protasis is that element of the sentence which is presupposed, or even "given" I will claim, however, that sentences with sentence initial apodoses are none the less typical, although certainly different. They appear in two forms:

either with a pause (a comma) separating the clauses, or without it. In the former case the apodosis is asserted and has sentence final intonation, while the protasis comes only as a comment or an afterthought; in the latter what is being asserted is the (causal) relation between the clauses, and the apodosis is often presupposed. (For more details see Dancygier forthcoming).

Thus, the apodosis-protasis order does not miss the causality at all. What is more, it seems to be better suited to be associated with causality only, because it does not admit inferential interpretations at all, while conversational ones appear only in the variant with the sentence-final intonation (which is perfectly justified, because conversational conditionals make independent assertions anyway). Presumably, then, the claim about the protasis-apodosis order being a better reflection of causality does not find enough support.

My second objection to Haiman's proposal refers to the fact that there are examples of sentence-initial protases which admit concessive interpretations (and do not require a "squeal"):

(17) (*Even*) *if he is a stuffed shirt, he's not a fool*
(18) (*Even*) *if he attacks me, I've got a gun*
(19) (*Even*) *if she called yesterday, I was out at the time.*

These are certainly not the garden variety causal conditionals — in none of the sentences is the apodosis dependent directly on the protasis, at least not in the sense of second order relations. Also, the order of the clauses seems to be important here. In (17) we are dealing with a conversational conditional in which the gradation of expressions of disapproval is an important element of meaning. Reversing the order is apparently possible, although *even* would then obligatorily appear on the surface, but the intentions of the speaker are distorted.

Examples (18) and (19) are still more interesting in that the relevance of their apodoses can only be explained through elements of meaning which are not expressed on the surface. Thus, (18) can be informally paraphrased as *If he attacks me, I still won't be in danger, because I've got a gun*, while (19) as *You say she called yesterday but I don't know anything about it, so I conclude I was out at the time.* It only remains to be noted that in both cases the unexpressed meanings render the surface conditions insufficient for what they were expected to be sufficient for, and we have explained, at least to some extent, why the concessive interpretation is the invited one here. We should also observe that in such (very specific) cases the scope of *even* is not the sentence as a whole, but the surface protasis with its underlying continuation. One can thus suppose that in the cases where *even* does not contain *q* in its scope, clause order restrictions are released.

It should also be noted that sentences like (18) and (19) cannot function in the same way if the order of their clauses is reversed — apparently because

their apodoses can only be considered relevant in relation to what comes in the scope of *even*.

Presumably, then, Haiman's claims concerning the clause order restrictions in concessive conditionals do not find sufficient support.

It remains to be seen whether the openness of *if*-clauses to concessive interpretations can be observed also in other languages. In Polish, however, I can find no evidence of such tendencies. All the examples given above would have to be rendered in Polish with conjunctions having overt concessive elements: *jeśli nawet* or *nawet jeśli*, *gdyby nawet* and *nawet gdyby*, (i.e. *even if*), *choć*, *chociaż*, or its subjunctive variant *choćby* (i.e. *although*). Sometimes the concessive element is "doubled', as in *choćby nawet*; in colloquial speech one can also find *nawet* in combination with *żeby*, a conjunction typical for clauses of purpose, but still in the sense of *although*.

It is interesting to note that the subjunctive form like *choćby* appears not only in subjunctive sentences such as *Wyszłabym za ciebie choćbyś był potworem z Marsa* (translation of (15)), but also in the protases of basically indicative sentences like *Wejdę na tę górę, choćbym miała paść* or *Dopadnę go, choćby to miała być ostatnia rzecz w moim życiu* (translations of (16) and (1) respectively). Apparently, this is a reflection of hypotheticality introduced by *if*.

This brings us to the question of the relation between *although* and concessive *if*. Van der Auwera (1986) recalls the question raised by Mackie (1973) why *even if* can be substituted by *although* in a sentence like

(20) *Even if she's fat, she's still pretty,*

but not in

(21) *Even if Mary goes, I won't go,*

and why *if* can mean *even if* or *although* in

(22) *He's sound if unimaginative.*

One of the most defended claims about *if* is that it introduces clauses (and sentences) which are not factual, but hypothetical; it is reflected, among other things, in the use of subjunctive and counterfactual forms, as well as in the restrictions on the use of future markers after *if*. No such restrictions hold for *although*, which presupposes the clauses that follow it to express facts (see König 1986). One can also note that sentences with *although* do not assert second order relations between their propositions. They contrast two facts or states of affairs, but as independent entities.

There are, however, conditional sentences which get very close to being factual. They refer to people's claims which are communicated to the speaker as facts. The speaker may or may not follow his interlocutor in giving a proposition a factual status, but he cannot give it a hypothetical form. Apparently,

the same can happen in a conversational concessive conditional like (20), in which the speaker admits that it may be true that the girl is fat, and claims that she is nevertheless still pretty. Each of the clauses is thus an independent statement, and the only link between them is that they are contrasted with regard to appropriateness. There is, however, no second order relation here.

If *even if* is substituted by *although*, the resulting sentence is very close to (20), but still different from it in that it asserts the factual status of the protasis. This cannot happen in (21) for two reasons: first, it refers to the future and thus cannot be factual at all, secondly, it focuses on the relation between Mary's going and the speaker's going. Neither of its clauses is an independent assertion to be contrasted with the other and evaluated for appropriateness or validity. In other words, (21) is a second order conditional, which is never factual, and which focuses on the type of relation between the propositions of *p* and *q* (usually causal), while (20) is a conversational conditional, which can employ statements communicated as facts, and which is concerned with appropriateness or assertibility of its constituent clauses.

Example (22) is in fact very similar to (20). It is reduced in form, but if all its elements are recovered we will obtain a usual concessive statement such as *He is sound, even if he is unimaginative*; similarly to (20), the sentence is concerned with the appropriateness of descriptive terms used, and not with causal relations between clauses. The applicability of *although* can thus be justified in terms of arguments raised for (20).

It is possible, then, to put forward a hypothesis that *although* and *even if* share the feature of contrasting two propositions; they do not, however, assert any content relation between them (such as the cause/effect relation). Furthermore, *even if* differs from *although* in that it introduces hypotheticality and sufficient conditionality.

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A NOTE ON THE SO-CALLED INDICATIVE CONDITIONALS

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Almost every account of conditional sentences refers, explicitly or implicitly, to the apparently generally recognized class of indicative conditionals. The class is usually seen in opposition to subjunctive and/or counterfactual sentences and, consequently, its members are characterized in a way negatively, as the conditionals in which there is no subjunctive mood and/or counterfactual meanings. Apart from the imperatives, which tell a different story about conditionals, we are left with sentences in which the indicative mood is used.

In such an approach, indicative conditionals appear to be a very heterogeneous class. The term will refer both to the typical futurate conditionals such as (1):

(1) If I miss the bus, I'll be late for dinner

and to slightly less typical, or rather, attracting less attention from philosophers, sentences like (2) and (3):

(2) If you called the police right away, the kids are safe now
(3) If he's driving a Mercedes, he's finally won in the pools.

On the other hand, sentences like (4) and (5) will have to be considered independently of (1):

(4) If I missed the bus, I'd be late for dinner
(5) If I had missed the bus, I'd have been late for dinner,

even though these three seem to have a lot in common.

A recent account of conditionals by Dudman (1984) offers a uniform and convincing analysis of sentences like (1), (4) and (5), based on the observation that these sentences are characterized by a distinctive relationship between

tense and time. Namely, the time indicated in the verb form clashes with the time indicated by the interpretation, which is always LATER. I do not intend to repeat the whole of Dudman's very complex account here, but I want to investigate the consequences of assuming, as he does, that for the conditionals outside his analysis, e.g. (2) and (3), the tense used indicates the actual time, and that the two clauses of such conditionals are generated independently of each other and are each given the form of a simple sentence.

The interpretation of the so-called indicative conditionals which are left with the label after the futurate sentences have joined the opposition (which, incidentally, can no longer be legitimately called "subjunctive") has recently been attempted by a number of linguists (see e.g. Dancygier and Mioduszewska 1984, Smith 1983, Sweetser 1984, Dancygier forthcoming, Rusiecki forthcoming). The accounts differ, of course, in terms of detailedness, scope, and, first of all, terminology, they seem to share, however, a belief in the plausibility of having the sentences which depart from the schemas of (1), (4) and (5) as an independent class. The arguments for this are based first of all on the observation that such sentences do not express conditional relations between events, but rather reflect certain mental operations performed by the speaker. Sweetser (1984) uses the term "epistemic", Dancygier and Mioduszewska (1984) define "non-consequential" conditionals, Smith (1983) postulates "evidential" ones, Dancygier (forthcoming) argues for "inferential" sentences, while Rusiecki (forthcoming) divides conditional protases in terms of "facts" and "hypotheses". As these terms suggest, the authors of the respective accounts see the interpretations of sentences like (2) and (3) as two mental steps that the speaker has to take: assuming (knowing, accepting as true, treating as a premise) and concluding (finding reasons, postulating as true, exploring the consequences). Such interpretations, regardless of the terminological diversity, are generally seen as different from the basically causal ones we find in sentences like (1), (4) and (5).

Among the features attributed to the class distinguished above most authors note a specific status of the protases of such sentences. The varying definitions can be summed up under the term "contexutally given", although claims regarding that differ in strength, and some accounts refer to such *p*'s as "assumed by the speaker to be true". The contextual giveness is best seen in the possibility of introducing phrases such as *as you say*, *as x says*, *as we know*, etc. into the protases of (2) and (3) above. This seems to reveal one of the major differences between the (1), (4), (5) type and the one distinguished above, because the protases of the former make contextually independent hypotheses concerning the present, the future, or the past.

Another observation made by almost all authors enumerated above is that in the sentences under consideration the time in the apodosis can in fact precede the time specified in the protasis. For instance, in (3) above, the assumed

time of winning in the pools has to precede the time of driving; the protasis is thus interpreted as referring to the present, while what the speaker infers from it concerns the past. Such a reversed temporal pattern is not acceptable in the type exemplified by (1), (4), (5), which is certainly connected with their preferred causal interpretation. It is difficult to say, though, whether it is the causality that comes first, thus implying sequentiality, or whether the obligatory sequentiality of *p* and *q* invites the causal interpretation. This question, however, need not concern us here.

One more question has to be raised in connection with the above distinction. The question is whether the "indicativeness" as seen above is the feature of sentences or clauses. Dudman (1984) claims that *p*'s and *q*'s of sentences such as (2) and (3) are generated independently, hence the selection of verb forms. Other analyses mentioned above (except Rusiecki forthcoming) seem to tacitly assume that the interpretational (inferential, temporal) link between p and q requires that the sentence be analysed as a whole. Rusiecki's account, on the other hand, applies the relevant distinction (fact vs. hypothesis in Rusiecki's terms) to the protases only. To illustrate this, Rusiecki lists seven sentences, each of which begins with *If Mark left the Institute at four* and continues with a different consequent, displaying an impressive variety of forms. It is then shown that some of the protases reflect "facts", while other "hypotheses".

One cannot help noting, though, that each time that *left* is interpreted as "fact" its tense is past and its time reference is past, while each time it is interpreted as a "hypothesis" its time reference is not past. Also, nothing is really known about one or the other interpretation until the whole sentence has been uttered, and once it has been uttered there is usually no doubt as to which one to choose.[1] This is due to the fact that sentences such as (1), (4) and (5) (hypotheses in Rusiecki's terms) do display patterns of verb forms and modals, also in the temporally mixed cases (e.g. *If she had listened to me, she would be still alive*). This seems like an obvious thing to say, but it is perhaps less obvious to suggest that this is only true for these sentences, and not for our revised indicative ones.

In the above paragraphs we have relegated sentences with future reference and present tense in their *if*-clauses from what has so far been referred to as a class of indicative conditionals. The question arises whether there are futurate sentences with *will* in their *if*-clauses which have features similar to (2) and (3): the match between time and tense, contextual giveness, and/or reversed temporal relations.

The essential question is whether there is a possible match in English be-

[1] I disregard here examples like the one given by Dudman (1984):
(i) If Grannie missed the last bus she would walk home
which is ambiguous between a generalization about the past and a more particular claim about the future.

tween future tense and future time. Apparently not, simply for the lack of future tense as such. It would have been impractical, though, to leave the question at that, in view of the fact that the verb *will* is a well established expression of futurity.

Non-volitional[2] uses of *will* in *if*-clauses have been noted in several papers published recently. Close (1980) sees the contrast between the present tense and *will* as that between "prediction" and "likelihood" respectively. Haegeman and Wekker (1984) and Haegeman (1984) view the problem in syntactic terms, assigning the *if*-clauses with *will* to the class of "peripheral" clauses, which either are comments on speech acts or "provide a motivation why the proposition is expressed in the way and at the time it is expressed" (1984:487). The most accurate and exhaustive account, however, seems to have been offered by Comrie (1982) and (1986).

First of all, Comrie notes that *will* appears in the *if*-clauses which are contextually given, as in (6):

(6) If nothing will cure me except rest, then I'll just rest.

Secondly, he observes, contextually given protases are often paired with apodoses which are temporally anterior to them, as in:

(7) If he won't arrive before nine, there's no point in ordering for him.

It seems, then, that this gives us a very neat distinction. There are basically two types of conditional interpretations: causal/sequential and contextual/non-sequential. In the former the actual time as later than suggested by the tense used, in the latter the tense matches the time. The protases in both types range through future, present and past reference.

There remains the question of the overall reference of the sentences containing such protases. The causal/sequential type of interpretation seems to raise little doubts, as the apodoses there can only remain within the same time period, or advance forward along the time axis. This results from their essentially iconic character, whereby events or states of affairs which are causes are followed by events or states of affairs which are effects. As Dudman suggests, the time reference of such sentences will always be later than what the tense used in the protasis actually indicates.

The sentences we claimed to be interpretable in terms of contextual givenness and non-sequentiality do not render themselves to an overall analysis of this type. Having stated that each of the clauses there refers to the time indicated by its tense we cannot find their common temporal denominator in

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[2] Throughout the paper I disregard the cases where *will* is used to express volition. Such uses would certainly cut across distinctions being introduced, as there are very few restrictions on their occurrence.

any of the verb forms used. We thus have to look for it on the level other than that of events and states of affairs given in each of the clauses.

This brings us back to the problem of such sentences being reflections of certain mental processes of the speaker. In such view, the temporal frame of the sentence is the time of the speaker's formulating premises, gathering relevant evidence, recalling relevant facts and then drawing conclusions, taking decisions, making suggestions. And this is invariably the moment where these operations are given verbal form — that is the present.

If we view the sentences such as (2), (3), (6), and (7) (and a host of others displaying all the conceivable time configurations) in terms of what is being done through them, and when, we will note that they are in fact sequential, though on a different level, and that they are basically relevant to the present. As regards (2), it draws on a past action to console the hearer now, (3) explains the present state of affairs by pointing to its past source, (6) announces the present decision and gives somebody else's prediction to motivate it, and, finally, (7) makes a suggestion (or even decision) concerning the present with regard to the expected course of events in the future. It is worth noting that the present relevance of these sentences can sometimes be seen in the use of adverbs and in some paraphrases. For instance, the sentences with premise/conclusion structure can mark their apodoses with a present tense phrase like *it means that*. It can appear in sentences like (8)

(8) If you haven't done your part yet, (then it means that)
I don't have to rush with mine

but also with ones referring to the past:

(9) If he told you I was going to marry him, (then it means that) he was lying.

It seems that a phrase like *it means* retains the time reference of the actual act of drawing the conclusion.

Also, let us note that the apodoses referring to past events as justifications of present states of affairs, opinions, suggestions, etc. are rarely expressed with the past tense, and preferably use the present perfect forms. If one considers two basic uses of such forms — to mark anteriority with regard to the present, or to denote "past with present relevance" — the choice of the perfect aspect seems to be well justified.

Apparently, the present relevance of such inferential (or epistemic) sentences explains why they can be characterized as "contextually given" and at the same time as non-sequential in terms of time reference. Grounds for present decisions or conclusions have to be assumed by the speaker, and in the majority of cases they are also rooted in the speaker's and hearer's shared knowledge — hence contextualization of premises. On the other hand, mental

processes like inferring do not have to follow the real-world sequence of events, and the only sequence that matters in the sentences in question is that of the elements in the inferential chain.

To finish this section of the paper, let me quote an example given by Close (1980).

(10) If you will be alone on Christmas Day, let us know now.

The sentence appeared on a poster on the door of a social welfare institution, two weeks before Christmas. As Close notes, the *will* here cannot possibly be substituted by *are*, because then its apodosis would be nonsensical — one cannot wait and see what the future brings and let somebody know about the turn of events two weeks in advance. Thus the relevance of the *if*-clause is certainly not that of the future, and in view of the *now* in the apodosis we can treat this sentence as relevant to the present. So far it does not differ essentially from the examples above. And yet there is a difference: the protasis is not contextually given in the way other examples of the type were. Apparently, then, this is not a necessary condition for the interpretation of future as relevant to the present.

The above proposals lead to a paradoxical claim that when one uses the future form in an *if*-clause one is actually talking about the present, while the use of the present tense in the conditional protasis ensures future reference. This should not, in fact, be so much surprising in view of the various modal meanings of *will* as well as the fact that future actuality in temporal clauses is also obligatorily expressed with the present tense. The problem that we have to face, though, is the interpretation of sentences which seem to share features of both modes of interpretation distinguished above. Consider:

(11) If this solution turns green when I add the reagent in a moment or two, the deceased died of hyoscine poisoning
(12) If you run out of gin, there's a bottle in the pantry
(13) If it rains tomorrow, we worked in vain yesterday[3]

All these examples are characterized by protases which refer to the future through tense, but their apodoses do not continue further into the future, they go back with their time reference into the present or even into the past. They thus seem to follow one pattern of interpretation (the sequential one) in the protasis, and the other (non-sequential) in the apodosis. Regardless of the apparent incoherence I want to claim that examples (11)—(13) refer to the future as wholes. For instance, the conclusion as to the causes of the patient's death will be drawn after the solution turns green and if it does. The invitation to open another

[3] Example (11) is taken from Dudman (1984), example (12) from Dudman (1984a), while example (13) from Comrie (1982).

bottle of gin will be valid after the guests finish this one, and, finally, the effort will turn out to be in vain (or not) only tomorrow. In example (13), which I owe to Comrie, there is a possibility of rephrasing the apodosis in the future perfect, and thus restoring the overt future reference throughout the sentence.

The question arises, though, whether examples (11)—(13) suggest, contrary to our initial assumption, that the clauses forming conditionals involving discrepancies of time and tense are generated independently. One way of finding support for the suggestion would be to give examples of subjunctive protases followed by indicative apodoses and interpretable in the protases' time reference. I have not, however, come across uses of the type.

It seems, however, that the sentences under (11)—(13) depart from our assumed generalizations in a different way. Namely, they apparently do not have surface apodoses at all. The clauses in the position of the apodoses are indeed generated independently and they do not link with the content of the protases. It is also worth noting that for (11) and (13) we can postulate elliptical apodoses in which the surface *q* clauses are embedded (e.g. *If it rains tomorrow, we'll have to conclude that we worked in vain yesterday*), while in (12) the surface *q* clause cancels the implicit negative consequences of the situation considered in the protasis.

The final example to be considered is (14), which has been very interestingly analysed by Comrie:

(14) If it will amuse you, I'll tell you a joke.

Comrie's line of reasoning goes as follows: *if*-clauses have *will* if they are contextually given. If they are temporally reversed without being contextually given they have present tense (as in (11)—(13) above). They can have *will*, though, if the reversed temporal relation is accompanied by bicausal relation between *p* and *q* (*p* causes *q* and *q* causes *p*). This, for Comrie, is the case for (14).

I want to argue against this interpretation. The fact that we know that jokes are meant to cause amusement is our general knowledge, but it does not enter the meaning (nor the interpretation) of (14). Neither is the speaker's desire to amuse seen as the reason for his telling a joke. In my view, the protasis contains a condition relevant to the present making of the offer: the speaker offers to tell a joke, but leaves it to the interlocutor to decide whether he wants to hear one (consider *if you think it will amuse you...*).

It is not necessary to force causality into the interpretation of (14) in order to account for the presence of *will* — as we have seen also in (10), the reversed temporal order, combined with present relevance (and in fact resulting from it), can explain the use of *will* in the protases which are not contextually given.

Let me close the discussion with some remarks concerning Polish. According to Comrie (1986), the contrasts he establishes between *will* and the present

tense have to be lost in languages like Polish, which have future tenses and will use the same form in all the situations discussed above. This is only partially true. Polish speakers will probably be able to grasp the contrast advocated above, and it will be due to the factors which are either independent of the tense form, or merely trigger it (such as relevance, contextual givenness, or reversed temporal relevance). Also, Polish is not totally helpless as regards overt expressing of at least some ot these meanings. For instance, the use of *mieć*+infinitive in conditional protases often does the job of signalling contextual givenness (*Jeżeli ma padać...*, *Jeżeli to ma mnie uzdrowić...*). In view of the fact that contextually given protases constitute the majority of relevant examples, the remaining area of potential ambiguity is markedly reduced. Finally, I do not think Poles would use the future tense in sentences like (10), and the preferred translation would use the verb *spodziewać się* (*to expect*): *Jeżeli spodziewasz się być sam na Święta, daj nam znać już teraz.*

Presumably, then, the opposition between clauses generated independently and conditional sentences of the causal/sequential type can be found not only in different temporal frames (present, past and future), but also in languages which apparently do not have sufficient formal means to express it.

Finally, it has been shown that the term "indicative conditionals", as it is traditionally used, covers a very heterogeneous class of sentences, or rather, members of one class, plus some members of the other. Its further use, then, requires redefinition of its scope.

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A REVIEW OF L2 COMPLEMENTATION PRODUCTION STUDIES[1]

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Introduction

Early work in L2 grammar acquisition focused on morphemes and was modelled after L1 studies. It was found in general that although the order of acquisition/accuracy order was different from that of L1 learners, the same order was maintained across linguistically heterogeneous groups and across adults and children (Dulay and Burt 1974a, 1974b; Bailey, Madden and Krashen 1974).

In the past few years, the work on grammatical acquisition has included studies on "higher order" structures. Several have focused on the production of English sentential complements by ESL learners from disparate language backgrounds. The purpose of this paper is to review the research on complementation production in order to identify commonalities in their findings. Although it is premature to say that these commonalities represent universals in the language learning process, they do provide further insight into it. Also examined are possible determinants for the similarities in their findings, as well as explanations for some of the more notable differences. The paper concludes with a critique of the research methodologies used and recommendations for further research in this area.

English sentential complementation

This section presents a brief description of sentential complementation in English. It is based on a generative transformational analysis of grammar (Chomsky 1965, Rosenbaum 1967, Lakoff 1968).

[1] This paper is a revised version of a paper presented at the Iowa Academy of the Sciences Meeting, April 1984. I would like to thank Janet Anderson for reading earlier drafts of this paper.

Complementation is a process whereby sentences are embedded inside other sentences. There are three types of complementizing processes, resulting in three types of complement structures. In traditional terms, they are the clausal (e.g., John thinks (*that*) *Mary will win*), the infinitive (e.g., Mary wants *to win*), and the gerund (e.g., John enjoys *studying*). Complements may be embedded in the noun phrase (e.g., *To err* is human) or verb phrase (e.g., John wants *to go*).

Restriction on the type of complementizing processes allowed in a sentence depends upon the matrix verb. Complement distribution is not random. Some verbs allow only one type of complement. For example, 'think' can occur only with the clausal, 'want' with the infinitive, and 'enjoy' with the gerund. Other verbs allow more than one. Examples include 'expect', which may occur with either the clausal or infinitive, 'hear', which may occur with either the infinitive or gerund, and 'admit', which may occur with either the clausal or gerund. In learning the different complementizing processess, ESL learners need to know not only their form but also their distribution.

The nontensed complements (i.e., infinitives and gerunds) may or may not appear with a surface structure subject. When the subject of the embedded verb is coreferential with that of the matrix verb, it does not appear in the surface structure (e.g. John wants to go). Deletion of the embedded subject is called 'equi-noun-deletion'. When the subjects are not coreferential, both are present in the surface structure (e.g., John wants *Mary* to go). With gerunds, the embedded noncoreferential subject appears in the possessive form (e.g., I regret *Tom's/his* leaving). With certain verbs, the infinitive may appear without the 'to' (e.g., I saw the tree fall).

Appendix A presents examples of the various types of complement structures and forms discussed here.

Description of the complementation studies

In this section, the various ESL complementation studies reported in the literature to date are described. Although there were a few early investigations into complementation production (Scott and Tucker 1974, Hart and Schachter 1976), of interest here are five later studies which attempted to establish accuracy orders for the three types of complement structures in post-verbal position. Alike in approach (i.e., data were elicited using written tests consisting of controlled production tasks), they differ considerably in format and method of analysis. The purpose of this discussion is to call attention to their marked differences. The accuracy orders established in each study are presented in Appendix B. Commonalities in their findings are discussed in the next section.

Anderson (1978) was the first to attempt establishment of an invariant

accuracy order for complement structures. Her subjects were 180 young Spanish-speaking adults learning English in Puerto Rico. In addition to the mastery of the three complement-types, she also investigated the use of the gerund after a preposition, tense sequencing in clausal and infinitive complements, and the obligatory use of a surface structure subject. Her written test consisted of translation tasks and multiple choice items. Anderson analyzed her data using the Bart and Krus (1973) Ordering-Theoretic Method, which establishes implicational relationships among categories. An advantage of this method is that it takes into account individual accuracy rankings. In a linear scaling, differences are averaged so that it is not readily apparent whether most of the subjects had about the same amount of difficulty with a structure. In the Ordering-Theoretic Method, such individual differences are not obscured because the rankings are based on the number of subjects having sequential orderings between the various categories.[2]

Schwarte (1982) replicated Anderson's 1978 study with forty-three Finnish subjects studying English at the University of Jyväskylä, Finland. Schwarte's study differed from Anderson's in two ways. First, she attempted to establish an ordering for a wider range of complement-types. Whereas Anderson focused on verbs which allow only one complement, Schwarte included verbs which allow two (e.g., Mary promised to go/Mary promised that she would go).

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[2] Data are analyzed as follows in the Bart and Krus Ordering-Theoretic Method. For each subject the percentage of correct test for each complement structure is calculated. Then each subject receives a binary score of 1 or 0 for each structure, based on the correctness percentages. A '1' is assigned to a structure if more than 80% of the test items for that structure are correct; if the percentage is less than 80%, a '0' is assigned. For eahc pair of complement structures (e.g., Infin-END/Infin-NP; Infin-NP/Infin-END; Infin-E END/Clausal; Clausal/Infin-END; Infin-NP/Clausal, etc.), four response patterns are possible; 00, 11, 10, and 01. The 10 response pattern (which means that more than 80% of the test items are correct for the first structure in the pair while less than 80% are correct for the second) cimplies that the first structure is easier and is labeled confirmatory. The 01 response pattern, which implies that the first structure is not easier than the second, is labelled sidcionfirmatory. The response patterns on all possible pairs of structures are tabulated for each subject. To establish an ordering between a pair of structures, the number of subjects having disconfirmatory responses for that pair is divided by the total number of subjects. If the percentage does not exceed the five percent tolerance level, the first structure is considered a prerequisite to the second. In other words, mastery of the first precedes mastery of the second.

The extent to which individual accuracy rankings can be obscured by using a linear scaling method instead of one like that proposed by Bart and Krus is shown by Nadra (1983), whose study will be discussed in greater detail later. Nadra analyzed her data using both the Bart and Krus Ordering-Theoretic method and a linear scaling (i.e., a rank ordering based on the percentage of correct responses for each complement-type). Out of her one hundred subjects, only sixteen has individual accuracy rankings which correlated significantly with the linear ranking.

Second, Schwarte tried to eliminate the influence that the type of task might have on production by having a greater variety of production activities (e.g., sentence completion, sentence combining, etc.). Like Anderson, Schwarte analyzed her data using the Bart and Krus Ordering-Theoretic Method.

Anderson (1983) also replicated her own 1978 study. In this second study, she examined the mastery of complementation by eighteen Persian and eighteen Spanish ESL students in the U. S. Although her test again consisted of only translation and multiple choice items, there were two procedural changes in this second investigation. First, Anderson reduced the number of complement-types investigated in order to have an increased number of test items per type. She did this to minimize individual variability. Second, she ranked the complement-types according to the percent correct, not the Bart and Krus Ordering-Theoretic Method.

Replication of Anderson's second study was made by Butoyi (1978). Her subjects included 169 students enrolled in UCLA's ESL program. She was primarily interested in determining a common accuracy order for the twenty Spanish, twenty-two Japanese, and twenty-three Persian speakers who took her test. Like Anderson, she administered a written test consisting of translation and multiple choice items and used a linear scaling to rank the complement-types.

The last study to be reviewed was by Nadra (1983), who, unlike the previous researchers, narrowed her investigation to infinitival sentential complementation. Her subjects were one hundred Arabic-speaking women learning English in Saudi Arabia. Like Schwarte, Nadra included verbs allowing more than one complement. Her multiple choice section, however, differed because it required students to select all of the possible complements a verb allows, instead of only a possible one. In this way it could be determined whether the subjects knew the range of complements allowed with each verb. Nadra used the Bart and Krus Ordering-Theoretic Method to analyze her data.

Commonalities in the results

In this section the commonalities in the results of the studies are identified. Exceptions are noted in the footnotes.

The first commonality deals with the accuracy orderings established for the different complement-types. In general, infinitives (except those undergoing 'to'-deletion) are easier than gerunds.[3] Greater ease of the infinitive has also been reported in other studies not dealing specifically with complementation The ordering of infinitives before gerunds was observed by Ioup (1983) in her.

[3] Although Schwarte did not establish prerequisite relationships between Infin-NP and the gerund categories, it was usually easier based on percent correct. The exception was Prep+Gerund-END, which had the same percent correct as Infin-NP.

investigation into the acquisition of various subordinate structures by Egyptian ESL learners. This ordering is also similar to that observed in first language acquisition (Limber 1973).

A second commonality deals with the accuracy of nontensed complements with surface structure subjects. In general, infinitives and gerunds undergoing equi-noun-deletion are easier than those with expressed subjects.[4] This seems true, however, only with verbs allowing one complement. With verbs allowing more than one (e.g., 'promise', which allows both the infinitive and clausal), the effect of a surface structure subject is not so distinctive.

A third commonality deals with complement preference. In general, the infinitive is the preferred complement form. It is the form most frequently used when either the clausal or gerund is also possible.[5] It was also the form most frequently overgeneralized when only one complement was possible. Preference for the infinitive has been noted in other studies not dealing specifically with complementation. Hart and Schachter (1976), in their investigation into the frequency with which relative clauses and complements were used in the compositions of Spanish, Arabic, Persian, Japanese, and Chinese students, observed that the post-verbal infinitive was almost universally preferred by all language groups.

Preference for the infinitive instead of the clausal seems to contradict Kellerman's (1979) proposal that the more explicit structures have transfer priority. According to Kellerman, if the target language contains two structures which are equivalent syntactically but differ in explicitness, the more explicit one is likelier to be used in the target language. The clausal is the more explicit complement form since it has a wider range of applications (i.e., it can be used regardless of whether the subjects of the matrix verb and the embedded verb form are coreferential). Given that both Spanish and Finnish have infinitives and clausals, the clausal, not the infinitive, should have been the complement preferred by both speakers. A possible explanation for this contradiction is discussed in the critique section.

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[4] Schwarte did not established a prerequisite relationship between Gerund-END and Gerund-NP, nor did Nadra between Infin-END and Infin-NP. However, Schwarte did find the Gerund-END easier than the Gerund-NP based on percent correct scores. Nadra, on the other hand, did not even find a difference between Infin-END and Infin-NP based on percent correct scores. This is surprising since the other studies do. The nonexistence of a difference in environment ease was probably due to Nadra's more difficult multiple choice task of having subject indicate all of the possible complements that can occur with a verb. Had the multiple choice section not been included in her analysis, the END environment would have been slightly easier.

[5] Three studies looked at complement preferences: Anderson (1978), Schwarte (1982), and Nadra (1983). Although Anderson gives some information about complement preferences in her article, additional information is provided in her dissertation, upon which her article is based (cf. Anderson 1976).

Possible determinants for the commonalities

Given the commonalities in accuracy orders and preferences, we now need to account for them. Because complement structures in the native languages of the subjects differ (e.g., Arabic does not have an equivalent to the English infinitive while Spanish and Finnish do (Nadra 1983), native language transfer is not a likely determinant of order. In this section, other possible factors are examined. These explanations, however, are speculative since causal relationships are difficult to prove. Moreover, when more than one is possible, all may have an influence in varying degrees. Some of the limitations of these possible explanations are also noted.

With regard to the first commonality — the ease of the infinitive over the gerund, one possible factor is the infinitive's frequency of occurrence. The infinitive's higher frequency may make it easier to master since it has more exposure and thus more opportunities for acquisition. Evidence of its greater frequency is presented by Butoyi, who established a frequency order for complements based upon an examination of about 8,000 words in the *White House Transcripts*: 46% of the 185 recorded complements were clausal, 34% were infinitive complements without surface structure subjects, 11% were infinitive complements with surface structure subjects, 4% were infinitive complements with 'to'-deletion, 3% where gerund complements without surface structure subjects, and 2% were gerund complements with surface structure subjects. Since collectively infinitives comprised about half of the complements used, its greater relative frequency may be a factor in its greater ease. Just as frequency seems to play a role in first language acquisition (e.g., Meork 1980), so it may also do so in second (e.g., Larsen-Freeman 1978).

Another possible factor in the infinitive/gerund mastery rates has been proposed by Rutherford (1982). He speculates that factivity may play a role in their acquisition. Factivity, as defined by Kiparsky and Kiparsky (1970), refers to the presuppositionality of the complement. If the presupposition associated with the complement remains constant regardless of whether the matrix verb affirms, negates, or questions it, then the matrix verb is factive. For example, in the following three sentences with the factive verb 'regret', it is presupposed that John told a lie:

(1) John regrets telling you a lie.
(2) John does not regret telling you a lie.
(3) Does John regret telling you a lie?

If the nonfactive verb 'claim' is substituted for 'regret' in the sentences above, such a presupposition cannot be made:

(4) John claims to have told you a lie.
(5) John does not claim to have told you a lie.
(6) Does John claim to have told you a lie?

In none of the sentences with 'claim' are we certain that John actually told a lie. Kiparksy and Kiparsky observed that nonfactives usually allow only the infinitive and factives the gerund.

The gerund's high occurrence with factives might make it harder to acquire. Rutherford makes this speculation in an attempt to show how the concept of markedness might account for accuracy orders. One member of a linguistic pair is marked it if involves an additional element (e.g., feature, morpheme, rule), is restricted in use, or entails greater psycholinguistic complexity (e.g., is more difficult to process). According to Rutherford, the factive might be considered the marked member of the factive/nonfactive pair due to its presuppositionality, which is assumed to cause greater psycholinguistic complexity. The gerund, in turn, might be considered the marked member of the infinitive/gerund pair because of its frequent use to denote presupposition with factive verbs in discourse. Marked members are usually acquired after their unmarked counterparts.

While intriguing, especially because of its consideration of the functional aspects of complementation, this explanation is also debatable. The linguistic item with higher presupposition may not necessarily be the marked member oa a pair (i.e., presuppositionality may not necessarily result in greater complexity). Support for this alternate view comes from Givon, who considers nonfactives, not factives, to be more marked. One of his arguments is based on cognitive-perceptual grounds: "events that have actually happened should be more salient for coding and retrieval than hypothesized events" (1984 : 289). Since complements accompanying factive verbs describe events that can be taken for granted (i.e., are uncontested), they are more salient. Forms with high perceptual saliency are unmarked.

To better understand the role presuppositionality might play in the acquisition ease of infinitives and gerunds, this author is currently investigating the perceptual difficulty of factives and nonfactives by native and nonnative speakers of English.[6] Results of a pilot test support Givon's view: factives, not nonfactives, are processed correctly more often. This was especially true for the nonnative speakers who took the test. They tended to make presuppositions regardless of whether the verb was factive or nonfactive. Although a study by Carrell (1984) indicates that ESL learners have difficulty making presuppo-

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[6] In the pilot test, a complement structure was presented (e.g., Mary ignored feeling hungry), followed by another statement which presented the presupposition (e.g., Mary felt hungry). Subjects marked the presupposition as true, false, or not possible to determine. Factive verbs were presented with both clausal and gerund complements and nonfactives with both clausal and infinitives. The types of complement did not have an effect on making presuppositions. That is, nonfactives appearing with clausal complements were not more accurately perceived than the nonfactives appearing with infinitive complements.

sitions with factives[7], the results of this preliminary investigation indicate that nonfactives can actually be more problematic (i.e., for nonnative speakers, the difficulty is not so much in knowing to make presuppositions with factives but in knowing not to make them with nonfactives). Since presuppositionality did not result in greater processing difficulty, a correlation between it and the gerund's greater production difficulty seems unlikely.[8]

With regard to the second commonality — the greater ease of nontensed complements without expressed subjects, a possible factor is length (Anderson 1978). Nontensed complements without surface structure subjects may be easier because they are shorter in length than those with expressed subjects. The ease of shorter forms is also evident in the tendency of elementary ESL learners to omit functors (inflections, particles, etc.). ESL learners may use an 'economy' principle, which might be stated as 'learn and use shorter forms first'. Use of such a principle helps ease the burden of communicating. Interestingly, although sentences like 'I wanted to sing' were produced accurately more often than sentences like 'I wanted him to sing', sentences like 'I heard him sing' were not. Sentences undergoing 'to'-deletion are not as easy as those underlying equi-noun-deletion, even though both result in shorter forms.

With regard to the third commonality — preference for the infinitive with verbs allowing more than one complement, there are several possible factors. An explanation for the preference of the infinitive over the gerund might be the same as that for the differences in their accuracy, namely frequency of occurrence. For the preference of the infinitive over the clausal, which are both frequent in occurrence, three other explanations are possible. One factor again involves an economy principle. Native speakers often prefer the shorest of the grammatical alternatives. A problem with this generalization, however, is that it does not always hold. As Pawley and Syder (1983) point out, the expressions "Do what I say!" and "Do what I tell you!" are more common than

[7] The purpose of Carrell's study was to determine if ESL learners have the same ability as native speakers to draw inferences. The ESL learners had to draw presuppositions and implications from English sentences containing factive and implicative predicates. Unlike the pilot study reported here, Carrell's study did not include sentences with factive predicates.

[8] This does not mean, however, that markedness plays no role in complement ease. An example of its existence is with the verb 'decide', which has a restriction on the complements allowed. In the END environment, both the infinitive and clausal complement can be used (e.g., John decided that he would have to leave/John decided to leave). In the NP environment, however, only the clausal complement is permissible (e.g., John decided that Bill would have to leave/*John decided Bill to leave). Many ESL learners use both complements in the NP environment since both can be used in the END environment. Only later do they realize that the NP environment is 'marked'. Another example is infinitives which require 'to'-deletion (e.g., I let him go). Since most verbs do not require the deletion of the infinitival marker, the verbs that do are 'marked' and are usually acquired late.

the roughly synonymous "Obey me!" while the expression "That's got nothing to do with it" is just as common as "That's irrelevant." A second possible factor is that there is an avoidance strategy in operation. With clausals, subjects have to pay attention to tense sequencing, which is difficult for them (Anderson 1978, Schwarte 1982). Thus, subjects may prefer the infinitive because they do not have to worry about what tense to use.

A third possible factor in the preference of the infinitive over the clausal may lie in the semantic nuances each complement conveys. Riddle (1975) points out that one semantic difference is that the former denotes activity and the latter a mental or physical state. For example, the sentence 'Jane decided to be cautious' describes a deliberate act while the sentence 'Jane decided that she was cautious' describes a condition. Moreover, with infinitives there is a closer relationship between the subject and the predication of the complement. For example, the sentence 'Jerry asked her to sing' implies that Jerry actually did the asking while the sentence 'Jerry asked that she sing' does not. Use of the infinitive may have been preferred because it makes the relationship between the subject and the embedded verb more salient. Had the sentences been presented in various contexts, the preferences may have been different. The importance of providing context when investigating complement preferences is discussed in the critique section.

Differences among the studies

Although the focus of this review is on determining the commonalities in the results of the studies reviewed, several of their more notable differences warrant comment. These differences may be attributed to factors other than native language.

First, many of the prerequisite relationships established by Anderson for her 180 Puerto Rican Spanish speakers were not established by Schwarte for her Finnish speakers. Of the six complement-types in common, Schwarte established less than half the number that Anderson did. Two explanations are likely. First, Anderson's subjects comprised a wider range of proficiency levels. Whereas Anderson had elementary, intermediate, and advanced learners, Schwarte had mostly advanced. Many of Schwarte's subjects had probably already mastered the categories that were being learned by Anderson's subjects. Second, in order to be considered 'mastered', ninety percent of the test items for a complement-type had to be correct in the Schwarte study but in the Anderson study the criterion was only eighty percent. Both factors probably resulted in a greater number of relationships being established in the latter study. Of importance here is the fact there were no instances of 'disagreement' between the two studies (i.e., an ordering being established in one study and the reverse ordering in the other).

Second, there was an instance of 'disagreement' between the Schwarte and Nadra studies. Complement production with verbs allowing both the infinitive and gerund with expressed subjects (i.e., 'hear' and 'see') was easy in the Schwarte study but difficult in the Nadra study. Nadra's contradictory ordering was probably due to her more demanding task of requiring subjects to indicate all possible complements for a verb. Whereas Nadra's subjects had to demonstrate that they knew both the infinitive and gerund were permissible, Schwarte's subjects did not. Since Nadra's subjects were not aware that the infinitive, as well as the gerund, was permissible with 'hear' and 'see', this category has a low accuracy score. Had the multiple choice section not been included, this complement-type would have been among the easiest for Nadra's subjects. We do not know if Schwarte's subjects would have such a high score if they had had the same type of multiple choice task.

Third, the Arabic speakers differed from the Finnish and Spanish speakers in preferring the gerund over the infinitive with verbs allowing both. This is an exception to the usual preference for the infinitive and is perplexing since the Arabic speakers were like the other speakers in preferring the infinitive over the clausal. Further analysis revealed the gerund was preferred most frequently with the verbs 'hear' and 'see'. Given that most of Nadra's subjects did not even know that the infinitive was possible with these verbs, the gerund was probably chosen not as a preference but out of ignorance that the infinitive was even permissible. This shows the importance of determining if subjects even know that two forms are possible when analyzing preferences.

Fourth, accuracy of the clausal varied considerably among the studies. Butoyi noted that it was the easiest complement-type for her Persian speakers but ranked midway between infinitives and gerunds for her Spanish and Japanese speakers. The clausal was more difficult in Anderson's first study than her second. There are several possible reasons for its variability. Butoyi speculated that it was due to 'that' having such a wide range of uses (e.g., a demonstrative pronoun, relative clause marker, a determiner, a complementizer). Anderson points out that the complexity of the verb tenses used can also affect the clausal's accuracy. Unfortunately, tense complexity was not controlled in all of the studies.

Critique of the studies

Given the differences in production tasks, matrix verbs used, subject's proficiency levels, analysis procedures, etc., the fact that there are commonalities in the studies reviewed is remarkable. Though commendable, the research studies to date do have several limitations. Identification of these should improve future investigations.

First, none of the studies make a distinction in mastery between the selection of a complement (e.g., 'want' allows only the infinitival complement) and the formation of a complement (e.g., the verb after the infinitive marker 'to' is not inflected). Accuracy orders have been based on a combination of both aspects. No study has looked at these separately to determine what effect each aspect has. It may be that selection is only a problem for elementary ESL learners while formation is a problem for all proficiency levels.

Second, none of the studies have examined in depth whether all verbs within a complement-type are alike in difficulty. Within a complement-type, some verbs may be more difficult than others. For example, with verbs allowing only the infinitive, it has been assumed that it is just as easy to select the infinitive with 'want' as it is with 'need'. This may not be the case, however. For complement preferences, at least, there does seem to be individual verb variation: verbs within the same complement-type do not always exhibit the same preferences. Anderson, in her first study, observed that although the infinitive was usually preferred with verbs allowing both the infinitive and clausal, with 'believe' it was not. She attributes this to the fact that 'believe' belongs to a class of verbs denoting mental action and that such verbs usually take the clausal. Nadra also observed variation in preferences within the same complement-type. It is important that a wider range of verbs be examined in order to determine the extent to which complement selection, accuracy in form, and preference are dependent upon the specific verbs involved in a category. The frequency of occurrence of these verbs should also be analyzed. It may be that their frequencies, as well as that of the complement-types, have an influence on acquisition ease.

Third, none of the studies have determined whether the observed complement preferences are unique to second language learners or are shared by native speakers. To investigate this, this author administered a modified version of her complementation test (Schwarte 1982) to a small group of native speakers. The results were as follows. The native speakers were like her Finnish speakers in preferring the infinitive and gerund over the clausal. They differed in their preferences with verbs allowing both the infinitive and gerund. With 'like', the native speakers preferred the gerund while with 'hear' and 'see' they had no preference. The Finnish speakers, however, preferred the infinitive with 'hear' and 'see' and had no preference with 'like'. In sum, this preliminary investigation into native-nonnative preferences indicates that while some preferences are shared, others are not. We especially need to account for those that are not.

Fourth, none of the studies have investigated complement preferences in context. Not only do we need to investigate differences in native-nonnative preferences but we need to do so in context. Riddle's work on the semantic differences between the infinitive and clausal indicates that context can make

a difference. In contexts denoting activity or direct involvement, native speakers prefer the infinitive over the clausal. We need to determine whether ESL learners prefer a specific complement-type regardless of context. An example of how such an investigation might be set up is a study by So (1973), who developed a questionnaire to verify various observations about the semantic nuances of infinitives and gerunds. He gave contexts to native speakers and asked them to choose one of two complements. For example, with 'try' he presented the following two contexts: (1) 'Since it was getting stuffy inside, he tried — the window, but that didn't help a bit'. and (2) 'Since it was getting stuffy inside, he tried — the window, but couldn't reach it'. Subjects had to select either 'to open' or 'opening' for the blanks. So found that native speakers' preferences did vary according to the context. For the first context subjects preferred 'opening' while for the second they preferred 'to open'. Bolinger's (1968) observation that the infinitive often expresses something 'hypothetical, future, unfulfilled' and the gerund something 'real, vivid, fulfilled' was confirmed. Tasks like So's need to be administered to both native and nonnative speakers to determine if nonnative speakers have the same semantic interpretations when complements are in context. In the pilot testing of such a task, this author found that there were native-nonnative speaker differences: unlike the native speakers, the advanced ESL learners tested overwhelmingly used the infinitive in both contexts for 'try'. Since acquisition of form does not necessarily entail acquisition of function (i.e., the semantic and discourse features), both must be investigated.

Consideration of the semantic differences between complement-types may account for the contradiction between Kellerman's claim that the more explicit form of two equivalent structures will have transfer priority and the observation here that the less explicit infinitive is preferred over the more explicit clausal. Kellerman's claim did not take into consideration the slight semantic difference between the two. Unfortunately, we still know little about the various functions of complementation. Although a complement-type's presuppositionality may not be able to account for its ease, other aspects of its function may.

Conclusion

Perhaps the most important finding of this review is the existence of commonalities in accuracy orders and preferences across heterogeneous language groups. Further replication is needed to determine if the commonalities observed are indicative of language learning universals. ESL learners representing other native language groups, especially those whose complementation structures differ from English, need to be tested.

In addition to further replication, we need to expand our investigations.

The critique of the studies indicates that we need to investigate the relationship between selection competence (i.e., the ability to select the proper complement) and formation competence (i.e., the ability to correctly form a complement). We also need to probe the complement-types in greater detail to determine the idiosyncrasies of specific verbs and to contrast the context preferences of native and nonnative speakers.

Other aspects requiring investigation include examination of a wider range of complement-type variations. For example, we need to determine if complementation production in the noun phrase is more difficult than that in the verb phrase. Is the accurate production of 'To learn English is fun' easier than that of 'It is fun to learn English'? Moreover, are such sentences easier than 'Learning English is fun' or 'It is fun for them to learn English'?

Also needed are studies on the frequency, accuracy, and function of complements in spontaneous writing and speech. Do findings based on discrete-point tests like those reviewed here mirror how ESL learners actually use complementation in free production?

And finally, would a longitudinally-derived ranking mirror the rankings derived cross-sectionally? What effect would a formal (i.e., classroom) versus an informal (i.e., naturalistic) language learning context have on this ranking?

Only with investigations like these can we gain further insight into the L2 acquisition of complementation.

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APPENDIX A

Complement Categories	Examples
Infin-END	I want *to go*
Infin-NP	I want *Mary to go*
Infin-NP/To-Deletion	I let *him go*
Clausal	I think (*that*) *John went.*
Gerund-END	I enjoy *singing*
Gerund-NP	I enjoyed *Mary's singing.*
Prep+Gerund-END	He believes *in playing baseball.*
Prep+Gerund-NP	He was delighted *at his coming.*
Infin-END/Clausal	Mary promised *to go./* Mary promised *that she would go.*
Infin-NP/Clausal	Mary expected *John to sell his car./* Mary expected *that John would sell his car.*
Gerund-END/Clausal	He admitted *breaking the window./* He admitted *that he broke the window.*
Gerund-NP/Clausal	Mary resented *Sam's winning the prize./* Mary resented (it) *that Sam won the prize.*
Infin/Gerund-END	I like *to play baseball./* I like *playing baseball.*
Infin/Gerund-NP	I heard *the tree fall./* I heard *the tree falling.*
(Obligatory Presence of) Surface Structure Subject	I want *you* to help them.
(Use of) Perfect (Tense)	He claims *to have read it.*
Tense (Sequencing)	He *knew* that she *had left.*

APPENDIX B

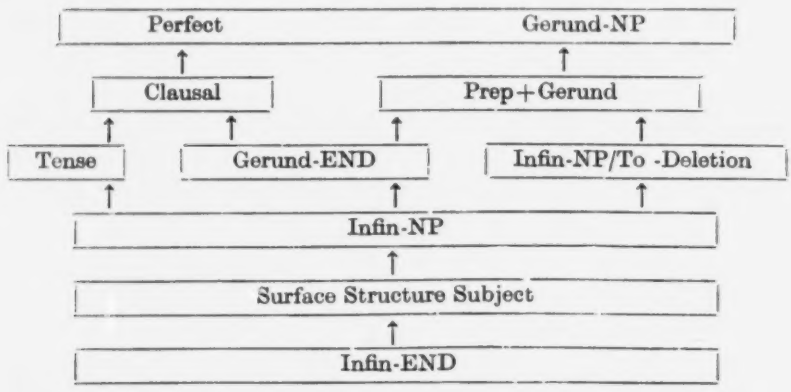

Figure 1: Anderson's (1978) Accuracy Order for 180 Spanish Speakers. Based on the Bart and Krus Ordering-Theoretic Method

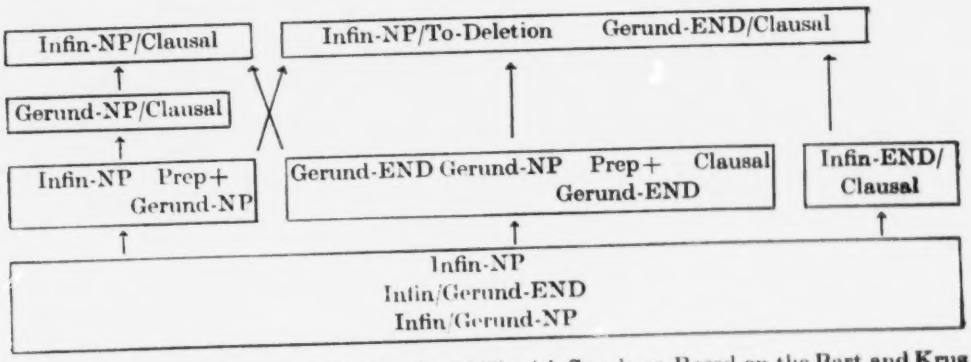

Figure 2: Schwarte's Accuracy Order for 43 Finnish Speakers. Based on the Bart and Krus Ordering-Theoretic Method

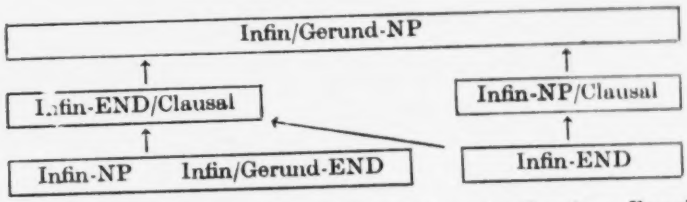

Figure 3: Nadra's Accuracy Order for 100 Arabic Speakers. Based on the Bart and Krus Ordering-Theoretic Method

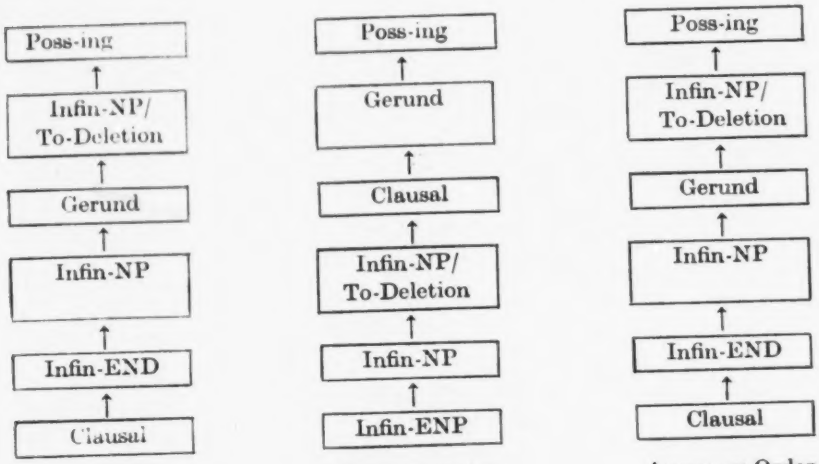

Figure 4: Accuracy Orderings Based on Percent Correct Scores

CONTRASTIVE LINGUISTICS IN THE CLASSROOM[1]

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The subject of the present paper will be the question: in what way can language teachers make use of a knowledge about similarities and differences between learners' native language (L1) and the language that they are trying to teach them (L2)?

Before the discussion, a word of warning would perhaps be fair. What this paper attempts to provide is only a set of principles rather than a teaching method. If the principles are sound, they should be translatable into a body of practical suggestions, but unfortunately this stage has yet to come. Seeing that the destructive potential of grammar teaching (cf. below) has manifested itself in so many different forms, including some where the contrastive angle was implicated, I have felt it was worth trying to say something about where grammatical knowledge, especially contrastive knowledge, can do some good, and what form it has to take if it is in fact to do it.

The issue discussed in this paper is one that has existed as long as language teaching itself. That the question is well-known, however, does not mean that there is a well-known answer to it. Until applied linguistics came into being each teacher had to work out his own answer, and although systematic discussion and investigation of problems of this kind has now been going on for some time, it has not provided us with a platform of substantial agreement which the teacher can take as his starting point. In fact, certain features of the history of the issue can make it difficult to tackle the problems in a constructive way. Past discussions have left us with some emotionally loaded questions, of which at least two are relevant in this connection, one being

[1] Claus Færch and Birgit Henriksen read the manuscript and made a number of important suggestions and corrections. Any remaining errors are, of course, entirely my own.

the status of grammar in language teaching, the other being the role of the mother tongue in learning a foreign language. In order not to invite misunderstanding, it will therefore be necessary to make clear what assumptions are being made in relation to these questions.

The first question, that of grammar in language teaching, is something of a skeleton in the language teacher's cupboard. In the bad old days of the grammar-translation method, explicit teaching of the rules of grammar was more or less an end in itself; it was supposed to teach the "logic' of the language, and what was worse, it was also an excellent means of disciplining recalcitrant pupils, since rote learning of abstract rules as a task for the pupil has all the marks of abject submission under the teacher's arbitrary rule.

When 'direct' methods slowly began to supplant the grammar-translation method, the artificial and deductive method used in grammar teaching had become synonymous with the word grammar in the minds of generations of teachers and pupils. Learning language the 'natural' way became established as the ideal towards which language teaching must strive — and what could be more unnatural than grammar as it was known from language teaching? As pointed out in Wagner and Petersen, grammar has remained a shibboleth in the discussion on language teaching methods, regardless of what other issues have come and gone.

The second question, that of L1 influence on L2 learning, is a comparatively modern issue compared with that of grammar in language teaching. Mother tongue influence was brought into the purview of linguistics in the USA during the forties and fifties, when behaviorism was the accepted frame of reference in psychology as well as linguistics. Since language learning was a matter of habit formation, foreign language learning must be a matter of learning new habits — and if the new habits had to be superimposed upon old ones, it was natural to assume that there would be a struggle. It was this basic assumption which motivated the first wave of contrastive analysis, sparked off by Lado's *Linguistics across Cultures* (1957). In its most crude form (which Lado did not represent) the assumption was that language learning was a process of gradually changing more and more of the L1 into L2. Therefore all the differences between the two languages were more or less automatically assumed to be so many problems, to be solved by energetic contrastive description followed up by appropriate teaching measures.

Since behaviorism was such a well-established paradigm, there was a whole framework of concepts that could be immediately used to interpret what went on in the process of learning a foreign language, with interference and transfer as the most important ones. There was also a whole battery of teaching strategies worked out on the basis of behaviorist principles. When applied to language learning, the behaviorist ideas yielded results like the language

lab, designed as the best place in which to hammer home the new habits of the foreign language. But the theoretical alliance between the contrastive approach and behaviorism on the one hand and behaviorism and "audio-lingual" teaching materials on the other hand did not mean that audiolingual teaching methods to any great extent reflected the contrastive approach, however logical that would have been in principle; most audiolingual materials were designed for a mixed international market, where a contrastive angle would have been inconvenient.

Interestingly enough, although the new model of language teaching did not build on contrastive grammar, it did include an emphasis on grammatical patterns. This meant that in spite of being totally different from the grammar-translation method in every other way, it reintroduced mindless rote learning of grammar into foreign language teaching. Instead of chanting deductive rules, the learners chanted 'pattern drills', but the feeling of boredom and unnaturalness was presumably about the same.

When behaviorism began to go out of fashion, thinking about language and learning developed in a number of new directions. Within linguistics, of course, the rise of Chomskyan generative grammar completely changed the accepted way of thinking about language. When, later on, this wave began to effect actual teaching materials, the continuing story of grammar as the evil familiar of language teaching acquired yet another chapter. Generative grammar gave a tremendous boost to the general interest in linguistic theory, and the association between creativity, cognitive development and linguistic structure led some people — in spite of warnings from Chomsky himself — to linguistify the basic language teaching programme, even for children in mother tongue education.

Within psychology, the word cognitive became symbolic of the change away from regarding man as being a product of influences to man as being active, and able to impose patterns on his environment rather than just the other way round. The assumption of L1 influence, however, survived in a kind of theoretical limbo, as an unspecified tendency among language learners. The way in which most people continued to think about it can be described by the quotation from Lado (1957) used as the starting point in Gass and Selinker (1983): " . . individuals tend to transfer the forms and meanings...of their native language and culture to the foreign language and culture" — in which the words "tend to" takes the place of a theory of what actually goes on.

The reason for this survival was no doubt that practical experience overwhelmingly confirmed the existence of something like what Lado was talking about. Theoretical clarification began only when some people were actually bold enough to suggest that L1 influence might be a myth. Studies of morpheme acquisition patterns demonstrated that a case could be made for certain developmental stages being independent of learners' linguistic back-

ground, which led a number of researchers, among whom Dulay and Burt were probably the most influential, to propose a theory of L2 learning in which the learning process proceeded according to precisely the same patterns as it did in the case of L1 learning, the "L2=L1" theory. Obviously that left very little room for L1 influence on L2 learning.

This provocation made it necessary to rethink the issue, if one felt that L1 influence could not be spirited away just like that. How keenly the need to begin afresh was felt can be seen if you look at what has happened to the terminology. The words "interference" and "transfer" had continued to be the standard way of talking about L1 influence, in spite of the fact that the theoretical assumptions that led to the formulation of these concepts had been discredited. Now this heritage became uncomfortable. "Interference" was the first to go. Using the word after, say, 1975, increasingly demanded the presence of inverted commas, since on close examination it carried an assumption that to a certain extent the speaker was a helpless repository of habits which got in the way of his attempts to speak a foreign language. Since the active, hypothesis-forming, creative speaker and learner had taken the place of the habit-forming automation of the behaviorists, this word had to be rejected.

In 1981 a conference was held at the University of Michigan on what was then called "transfer" — so that was still okay, while the introduction to the volume containing the conference papers carefully explains why "interference" was not. Although this conference came to mark symbolically that the phenomenon had survived the onslaught of L2=L1 theorists (cf. Færch and Kasper in press), the fact that this was still a contamined area can be seen from the circumstance that three years later, at the Edinburgh conference on interlanguage, people who were content to use the word in 1981 had to renounce it in favour of "cross-linguistic influence" (cf. Kellerman (1983, 1984); Andersen (1983, 1984)). The general feeling about the issue today, however, seems to be that the residual behaviorism which the issue has been infected with has been cleared away, and the process which is now at work is to find out more about the phenomenon rather than discuss its greater or lesser importance (cf. Færch and Kasper 1986).

One of the basic points on which the general feeling goes against the L2=L1 hypothesis is probably the one expressed by Widdowson (1980), when he points out that the difference between the L1 learner and the L2 learner is that the L2 learner already knows how to form communicative intentions of great subtlety and complexity: what he has to learn is the way to express them in a new language. In its extreme version, the L1=L2 hypothesis would imply that the L2 learner forgot everything and started all over again. No matter how convincingly one could argue that morpheme acquisition proceeded according to a fixed sequence, morpheme studies could of course

never in themselves prove that the learning process as a whole was completely insulated from the already existing, fully developed communicative competence of the learner. To put it simply: a learning process requires the presence of two factors, a learner and a learning task, and it would be very surprising indeed if the process was not influenced by both of these. What the morpheme studies prove is that there are aspects of the learning process which are dictated by the inner logic of the task itself, a fact well-known from other situations in life. A Danish proverb warns against trying to build a house chimney first; but the universal validity of this principle does not force us to the conclusion that all housebuilders necessarily proceed in the same manner, regardless of cultural background, training and accomodation requirements.

This brings us back to the issue of language teaching. Above we saw how grammer in language teaching had brought its bad reputation up to date, and how gingerly one has to approach the contrastive angle in order not to be caught up in the shadows of the past. In a teaching perspective, opposition to both grammar in language teaching and assumption of L1 influence has found its most implacable representative in Krashen. According to his views, language acquisition (the true way of coming to master a foreign language) works in a mysterious way, its wonders to perform, inaccessible to outside influences other than L2 input, impregnable to potential sources of confusion, past (L1) or present (teaching). The laborious, conscious process of "learning" is only useful in situations when one has the time to construct utterances consciously and will, according to Krashen, never turn into or even help acquisition.

The general feeling among applied linguists, however, tends not to support these views. Færch (1986), among others, gives a number of reasons why this hard and fast distinction is improbable, comparing language acquisition with learning how to drive a car. It is true that explicit instruction does not immediately enable you to drive, just as explicit rules do not enable you to speak, but nevertheless there are points in the process of learning when it is useful to be told what to do and how. If explicit knowledge was always useless, there would be no reason for people who wanted to acquire a language to look words up in a dictionary; if they really wanted to know the word they would have to wait patiently for a chance to pick it up in a natural communicative situation. The process that potentially converts explicit teaching to learner competence is automatization: the first time you try to change gears while driving, you do it clumsily, the cogs grind against each other, and the engine probably conks out, but with practice you learn to do it "fluently".

The fact that Krashen's views have not been widely accepted, however, does not mean that there is any agreement on precisely what form explicit teaching, promoting conscious processes of learning, should ideally take.

Brumfit (1984) begins by outlining three models of language teaching, of which the most widely accepted is in fact the one where the teacher's only role is to provide a favourable environment for communicative interaction, with no attempts to control learner performance. After giving an overview of the situation, Brumfit describes his position as 'cautious dualism', which means that without rejecting the model described above he leaves open the possibility that explicit teacher intervention in the learning process may sometimes (note the ubiquitous modal qualification) be a good thing. The reason for this cautious stand probably has something to do with the reaction against the grammar-translation method as described above; it is still true, as pointed out by Allen and Widdowson (1975), that most of us remember it so well from our schooldays that we do not want to associate ourselves with anything remotely resembling it.

Therefore, it is still not entirely clear in what way the teacher can interfere with the learning process without experiencing a relapse to the dead and unsavoury past. As a first step one should therefore emphasize that recognizing a potential role for explicit knowledge, of course, does not imply any scepticism with respect to the importance of natural communicative interaction or language acquisition. In contrast to Krashen's views, it is possible to take a stand where the fundamental driving force in the learning process is the attempt to carry out communicative action in the L2, while leaving room for that assumption that other factors may help (or obstruct) the process. Once this is clear, as pointed out by Færch (1986:128), this stand raises as a crucial issue how pedagogic grammar can be used in the foreign language classroom in a way which is reconcilable with communiciative, learner-centred language teaching. It is this question which the remainder of the paper will be devoted to.

In pinpointing the potential niche for explicit knowledge, I would like to suggest that there is one particular situation type which is of particular interest, namely that in which the learner feels forced to drop out of the natural flow of automatic rather than conscious speech production, not because of the teacher's interruption, but because she comes across a problem which cannot be solved at this level of production. This type of situation can be conveniently illustrated with reference to the occurrence of L1 influence in learner speech. Færch and Kasper (1986) define two types of transfer, "automatic" and "strategic" transfer, which differ with respect to two dimensions, attention and automatization. Briefly speaking, automatic transfer is unattended and highly automatized, whereas strategic transfer occurs when the learner directs his focal attention towards the solution of a problem in the planning and execution of speech. A situation where automatic transfer is likely is e.g. in the case of the exclamation associated with sudden pain — even if you know it is "ouch" in English, you may have said Danish "Av"

before you think of it. Strategic transfer, on the other hand, is part of the speaker's conscious attempt to get his message across in spite of deficient resources.

Of these two types it is the strategic case of transfer that is most interesting here. As pointed out by Corder (1983), it is difficult in practice to distinguish between interlanguage (IL) rules (i.e. the already established rules that the learner depends on when he tries to speak a foreign language), strategies of learning and strategies of communication. What may have come into being as an attempt to solve a problem here and now, may (after the fact) be used as a means of increasing the learner's linguistic resources — and finally become part of the IL rule system. Whether, at a particular time, a way of expressing has the first, second or third status is very difficult to tell.

Whatever the precise relationship may be, achievement strategies of communication possess some features which make them more interesting from the point of view of language learning than is sometimes recognized (Kellerman (1984:120) says that some researchers wish to understand transfer as a "mere" communication strategy). Therefore it is worth emphasizing that in situations where learners are employing them, they are working at the limit of their resources, trying to do more than they really can; they feel the need of more L2 resources than they possess, and their focal attention is on language. Regardless of how this situation should be understood in theoretical details, it is obviously of considerable importance from the point of language learning. Without wishing to pursue the comparison too far, let me point out that Arnold Schwarzenegger has said that the critical factor in bodybuilding is the ability to cross the pain barrier: if you are able to go on, even when you feel that you can't, that is when you will really get better. I should like to suggest that in this respect language-building shares something with bodybuilding. If the learner frequently finds herself in situations where she feels the need to increase her resources and she actually succeeds in finding a way to expressing more than she thought she could, her L2 communicative potential is in a state of growth. Of course, there are learners who find a way never to tackle problems of communication greater than they can solve without showing signs of being in trouble, nevertheless picking up language as they go along. What is important is the fact that attention devoted to language and thus also degree of consciousness of language problems are things that vary during the process of speech. To the extent that the natural process of communication occasionally forces learners to rise to higher levels of consciousness than ideal for the natural flow of communicative exchange, intervention at this level of awareness is not necessarily an obstacle to "natural" learning, but may actually promote it.

One thing which may cause one to sympathize with Krashen is the tendency among some teachers to correct indiscriminately, thus preventing anything remotely approaching a flow of communication from ever taking place in

the classroom — partly because of the sheer interruption, but partly also because the students are so frequently forced to operate on a level of consciousness which impedes fluent language use. It is probably still necessary to emphasize that "you can't learn without goofing" (cf. Dulay and Burt 1974), but forcing learners on to an oppressive level of consciousness is quite a different matter from being ready to assist them at the level of consciousness which circumstances have forced them to rise to. To take the simplest possible example: what does the teacher do, when the student asks, "How can I put "....." in English?" — or even "Why can't you say "..." in English?"

If, as I claim, we find ourselves at the growing edge of language whenever the learner is working with an achievement strategy, it becomes crucial for especially teachers to be able to help the learner in the best possible way. If we return to the unclear relationship between communication strategy, learning strategy and IL rule, we could express the problem for the language teacher as that of using the openings provided by the "strategic situations" of the learners in such a way that the process of converting the immediate problem which shows itself in the form of a strategy to language learning proper does in fact take place, and also functions in a way which is of the greatest possible benefit to the learner.

Let us consider the possible reactions of the teacher when he realizes that the student is trying to solve a communication problem in the L2. Apart from letting the learner struggle on the simplest reaction is to suggest a solution to the problem — finishing the sentence, typically. This has the advantage that it interferes as little as possible with the ongoing interaction, provided the teacher's intuition as to where the problem lay was correct. It may also cause learning because next time the learner comes across the same problem, the teacher's suggestion may be stored away for future reference. But if this is the only option open to the teacher, it means that all language problems are treated as lexical problems. All communicative intentions are treated as individual problems requiring individual solutions, to be memorized and invoked in isolation from each other. This cannot be the most efficient way of promoting the learner's creative, hypothesis-forming activity.

If the teacher wants to help the students to learn the relevant generalizations, it might be useful to consider the types of solutions that learners "tend to" employ spontaneously. Such solutions would at least have the advantage that they are not totally alien to the learner. The type of solution that this paper will focus on is the L1-based strategies. How can the fact of L1-based achievement strategies, or strategic transfer, be an inspiration to the language teacher?

As described in Færch and Kasper (forthcoming), learners try in many ways to make predictions about L2 by inferences from L1, combining linguistic levels and generalizations in various imaginative fashions. The obvious

way of helping the learners based on this observation is to help her making the right inferences, based on whatever L1 material would be useful. To the extent that clues to troublesome L2 generalizations can be found in the L1, this source of knowledge is of potentially very great help to the learner, since it is already firmly established in her mind: saying that an L2 phenomenon corresponds to a particular L1 phenomenon is a short cut which renders superfluous the sometimes rather abstruse descriptions known from grammar books, relating the learning task directly to something the learner is already an expert in.

Therefore the role of contrastive linguistics in language learning may in fact be potentially greater than is perhaps typically imagined today. It must be emphasized, however, that it will have to take a different form than what was typically found in the first wave of contrastive descriptions. Instead of focussing on the L1 "habits", contrastive pedagogic descriptions will take their starting point in the L2, looking systematically for equivalences in the L1 to troublesome L2 generalizations. A contrastive grammar should provide a path into the L2, turning as much as possible of the L1 into operational assets for the learner. The L1, in the other words, should be described from the point of view of the L2, rather than the other way round.

I do not mean to imply that contrastive descriptions have never revealed this type of information, only that the perspective has traditionally been the other way round. Also, as pointed out by Ringbom in his review of Gass & Selinker, attention has tended to focus on the negative aspects of transfer rather than on its facilitating potential. Particularly when comparisons involving different linguistic levels in the two languages are relevant, much useful information has been overlooked. An example is the description given of the progressive aspect in a widely used school grammar of English in Denmark (Steller and Holst Jensen 1978). Before going into the description proper, the grammar gives a number of different examples of sentences with the progressive aspect, with translation equivalents attached. Every single translation equivalent is an example of the Danish type of idiomatic phrase that is the nearest equivalent in Danish to the progressive aspect — but this is nowhere pointed out. The translations stand simply as isolated instances of how one might choose to render individual cases of the progressive in Danish.

After such emphasis has been put on the usefulness of what the learners already knows, it should perhaps be added that there is no intention of rejecting the traditional strategy of looking for difficulties traceable to the L1. Wherever investigation confirms the existence of problems caused by excessive reliance on L1 structures, a pedagogic contrastive description must of course incorporate descriptions of the problematic differences between L1 and L2. However, instead of conceiving of the contrastive description as a form of trouble-shooting, as Lado and many others did, we should see it

as the attempt to make available all the possible support that the learning process can get from an awareness of similarities and differences between the two languages involved. In many cases, pointing out equivalences and warning against differences will probably go hand in hand, since differences that create problems often do so because they look deceptively like equivalences which are okay in other contexts.

If contrastive information is to be useful for the teacher, however, it will not be enough to work out theoretical descriptions of cross-linguistic equivalences and differences. In order to be of any use, grammatical information has to be available in a form that can help the learner, at her particular stage of acquisition, to form the relevant generalization. Recalling the "chimney-first" clause, such contrastive descriptions will therefore have to be worked out in a graded form. Possibly to the surprise of some, research into natural acquisition patterns could thus go hand in hand with endeavours to work out pedagogically suitable contrastive descriptions. Depending on how far the learner has got in the process, the rules will have different shapes and invoke different types of L1 knowledge. With respect to subject-verb inversion, for instance, the first thing a Danish learner would need to know is that it is an exception in English, whereas in Danish it occurs whenever a sentence constituent other than the subject is in sentence-initial position. Very much later, contexts like "Not until later..." and "Then came what was to be the biggest experience in his life..." can be dealt with.

Among the problems which I have not touched on in this paper is the way in which grammatical information is best injected into the teaching process, as it were. To a great extent this must depend on the individual teacher, although continued research into acquisition patterns may bring some clarification. Once we know more about the relationship between schematic learning in Widdowson's sense (1983) and learners' hypothesis formation, we may be able to find better ways of establishing and utilizing such language schemata in the classroom; and this would of course also have implications for the way grammatical information should be introduced. It is important to be aware that grammatical information need not imply the deadening teaching practices that used to go with grammar in the classroom. Byrne (1978) gives an example of how grammatical structures can be taught by means of communicative teaching methods.

What this paper has tried to argue, however, is only that a certain type of linguistic knowledge would be useful, regardless of the precise way in which the teacher might choose to use it — and that this linguistic knowledge should be organized in a different way than most contrastive descriptions are, reflecting the learner's path into the L2. Until we know a great deal more about that path than we do now, such a description can probably only be worked out in cooperation between grammarians and language teachers if it is to be

useful in practice. In its full shape, such a contrastive description would embody the whole, complicated truth, but it would only come in the last chapter, so to speak. It would thus bridge the uncomfortable gap that at present exists between rules of thumb, which represent the teachers' (more or less individual) attempts to provide grammatical information in a useful form, and the 'gospel truth' of the grammar books, while systematically exploiting any L1 roads of access to the complications of the L2.

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CHARACTERISTICS OF LANGUAGE SHIFT IN TWO AMERICAN HUNGARIAN BILINGUAL COMMUNITIES*

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Introduction

"A language shift may be defined as the change from the habitual use of one language to that of another" (Weinreich 1953:68).

Language shift is a long process influenced by a number of factors, determinants. A community can be a stable bilingual community, maintaining both languages for centuries and then may become an unstable one undergoing shift and therefore assimilation in the course of social change.

E.g. Lieberson et al. (1981) cite census data which show that as recently as in 1900 more than 40 per cent of the Indian population could not speak English at all. In 1940 20 per cent of the Whites of Louisiana still reported French as their mother tongue — almost 150 years after the purchase of Louisiana from France (Bratt Paulston 1981).

But we do not have to go as far as that to find examples of this tendency. It is shown by Gal (1979) in the small town of Felsőőr (in German: Oberwart) in eastern Austria that language shift started only in the recent decades, as a result of the process of urbanization after 400 years of Hungarian — German stable bilingualism. In the above cases the communities in question are *indigenous* subordinate groups, which did not seek contact with the dominant group; they found it imposed on them; ..."their groups in their entirety were

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brought into the environing society with their culture intact" (Bratt Paulston 1981:475).

On the other hand the linguistic, cultural attitude of *immigrant* subordinate groups is completely different to the dominant group, in our case the Anglos of the United States of America. The immigrants' goals were those of assimilation. They had voluntarily left their countries to find better, more satisfactory conditions in the new world, and language shift was an important aspect of their assimilation. This seems to account for the extraordinarily rapid language shift which is charactristic only of immigrant subordinate groups (Lieberson 1981).

Thompson, speaking of Mexican American language loyalty, points out that typically in the United States the first generation prefers to speak the non-English tongue, the second generation is bilingual, and the third claims English as its mother tongue, learning the immigrant language mainly through contact with the grandparents (Thompson 1974). By first generation I mean immigrants born in the old homeland, the second generation is the first generation born in the new homeland, in our case, America. If we apply Veltman's terms for the degrees of bilingualism in the United States, we can say that the first generation is *simple bilingual*, meaning that the main language is the mother tongue, the second is *Ensligh bilingual* meaning that the main language is English but the mother tongue of the parents is maintained, and the third generation is *English monolingual*, i.e. the non-English tongue is hardly (if at all) maintained.

This is basically what I found in the two American Hungarian bilingual communities, too, in the urban community of New Bruswick, New Jersey, and in the small rural community of Árpádhon (this was its first Hungarian name given by the original settlers), i.e. Albany, Louisiana, where I was doing research in 1983/84 as an ACLS fellow for 10 months and as a fellow of the American Hungarian Foundation in New Brunswick, N. J. for the last 2 months of my one-year sojourn in the United States.

Database and fieldwork methods

I was doing fieldwork in the above mentioned two communities, New Brunswick, N. J. and Albany, La., but also in New York City I interviewed 34, and in Berkeley, California 6 individuals.

Altogether I have 54 hours of taped interviews suitable for analysis, 30 hours from New Brunswick, 12 hours from Albany, 9 hours from New York City and 3 hours from Berkeley. In New Brunswick data were collected from 79 informants, 39 women and 40 men including 15 married couples. In Albany I had 28 informants, 15 women, 13 men, including 4 married couples.

I had to cope with the problem of obtaining representative data. Random

sampling as Sankoff (1974), and Milroy (1980) point out, exacerbate the basic problem of what Labov so aptly names "the observer's paradox" namely, that the researcher wants to record natural speech yet he is a stranger whose presence let alone the presence of a microphone changes the character of the phenomenon he is observing. As Labov puts it: "We are left with the *Observer's Paradox*: the aim of our sociolinguistic research will be to observe how people talk when they are not being observed. The many partial solutions to this paradox form the heart of sociolinguistic methodology" (1972:10). Sankoff (1974) also point sout that, for example, people who are being interviewed sel dom use interrogatives, data may be limited not only stylistically but even grammatically.

With the help of a second generation female member of the Albany community (she accompanied me on several occasions during my fieldwork) I was able to follow Milroy's (1980) fieldwork method applied in Belfast. I had the status of a friend of a friend; A combination of an outsider and an insider. In this capacity I was able to record interaction between members of the community at leisure before and after — even during — the interview, thus having access to a wider range of the subjects' linguistic repertoire.

On these occasions I tried to fade into the background. Doing this I tried to combine the individual interview method with the group session method that Gumperz started in his research in Hemnes, Norway (Gumperz and Blom 1972). Groups were recorded in interaction; the interviewer gradually receded from the situation.

The interview consisted of two parts. The first was the questin-answer part with questions pertaining to the informant's family history, social network contacts and language use. (Suggestions by Susan Ervin-Tripp and Susan Gal were considered.) The informants were asked to speak both English and Hungarian. The second part of the interview consisted of a pronounciation test partly based on William Nemser's "Experimental Study of Phonological Interference in the English of Hungarians" (1971) measuring the degree of interference in the pronounciation of *voiceless stops* ("p"; "t"; "k";) and *interdental fricatives* (voiced and voiceless "th"). (Suggestions by Robert Austerlitz and Ferenc Kiefer were taken into consideration.)

Fieldwork findings

Pronounciation

It is interesting to compare the pronunciation differences between first generation speakers in the rural community of Albany.
There were four first generation informants:

A1 — female — is 94 years old, came to the U.S. at the age of 15.

A2 — female — is 80 years old, came to the U.S. at the age of 19.

A3 — female — is 71 years old, came to the U.S. at the age of 10.

B1 — male — is 83 years old, came to the U.S. at the age of 12.

None of these have ever gone back to Hungary since they left. Subjects A3 and B1 went to school in the United States for two years. B1 attended also a pressman course. A1 and A2 had no education in the U.S.

Speakers A1 and A2 substitute a voiceless stop "t" for a voiceless interdental fricative "th". Bl's sound is something in between a "th" and a "t". A3's "th"s" are roughly those of a native American English speaker. (It should be mentioned here that the English speech and the phonetical test were listened to by two native speakers of standard American English.) It is also important to point out that the pronounciation of a voiceless stop "t" in place of a voiceless "th" is common in some native American dialects and social registers. Speakers A1, A2 and B1 pronounce a "d" voiced stop as a substitute for voiced interdental fricative "th". A3's voiced "th" is approaching the standard English one. A1 and A2 do not aspirate initial voiceless plosives "p", "t", "k". They say [pɪn] [tɪp] instead of [pʰɪn] [tʰɪp]. Informants A3 and B1 aspirate them.

A typical example of vowel interference is that informants A1 and A2 do not make any distinction between short and long [ɪ] and [i:] vowels. They pronounce a half long [i] for both of them. The place of articulation is that of a Hungarian short [i] sound. They pronounce the vowels in *pin* and *peak* in the same way. A3 and Bl's short and long [ɪ] [i:] vowels approach those of a native speaker of English.

After comparing the above data I found that the most important factors in acquiring English as a second language are 1. age — at what age the informant left for the United States, and 2. schooling in the United States. Naturally these are closely connected because the younger the person the more schooling he will have in the U.S. Those informants (A3 and B1) who went to America at the age of 10—12 have much better results than those (A1 and A2) who left for America at the age of 15—19. There is not much difference between A1 and A2 or between A3 and B1. It goes to support the widespread view that the turning point is around the age of 13—14, i.e. the age of adolescence. At the same time A3 and B1 also went to school for two years in the United States.

An interesting finding is in connection with progressive and regressive assimilation. Progressive assimilation occurs in English but is not typical in Hungarian. That is why Hungarians often err by having regressive assimilation, especially in the past tense of verbs. Most educated Hungarian speakers — the 56-ers and more recent immigrants in the New Brunswick urban community-pronounce the past tense of the verbs *look* and *talk* as [ludg] and [tɒ:gd] instead of [lukt] and [tɒ:kt]. However, most first generation informants of the first emigration wave have the correct progressive assimilation both in the Albany and the New Brunswick communities. It is understandable since these

people did not study English from books; they just picked it up by listening to native speakers of American English, their pronunciation was not influenced by the written forms *looked*, *talked*.

It should be pointed out here that the main emigration waves from Hungary to the United States of America were as follows: the first and greatest of them was at the turn of the century (1870—1914) when one and a half million immigrants arrived in the United States from Hungary (or rather the Austro-Hungarian Monarchy). In character it was a rural mass emigration for economic reasons. The second wave is the so-called D.P.-s (displaced persons) who left the country after the Second World War for political reasons. At the time about 10—15,000 people arrived in the United States. The third wave took place in 1956—57. These immigrants were mostly — but not only — educated intellectuals. They were the so-called freedom fighters or 56-ers, who left Hungary also for political reasons. 40,000 immigrants arrived in the U.S. at the time.

Members of the rural Albany community are all from the first emigration wave.

In the urban community of New Brunswick we can find all the emigration waves represented plus more recent immigrants, therefore it is a much more complex task for the researcher to analyze characteristics of language shift in the community. This is why in the present paper I mainly concentrate on the Albany findings.

Vocabulary

In connection with the use of interlingual words in the Albany community, we can say it is similar to the well-known pattern of old timer American Hungarian vocabulary: *káré* (car), *farma* (farm), *hálé* (hall), *muffolni* or *muffunyi* (to move), *lódolni* (to load), *boxi* (box), *kekszi* (cake), etc. The original settlers probably learned these while still working in the east or midwest, before they went down to Louisiana. (There is only one member of the community who came directly from Hungary. Informant A2. She was sent for as a bride.)

There are some special words, however, characteristic of the community. E.g. American people are referred to as *móc*. The word comes from Roumanian meaning Romanians coming from the Transylvanian mountains. (Explanatory Dictionary of the Hungarian Language 1972). It was a pejorative term meaning "hick" or "hillbilly". Now the word is always used accompanied with a smile, losing its pejorative force. Another example is *berry* meaning strawberry, which was the main crop in Albany. The local inhabitants pronounce the word with a one-flapped "r" and use it also when they speak Hungarian. They do not know the Hungarian word for *strawberry* at all. The word *sandi* means *shed*. It is a salient example of French-Cajun influence in Louisiana. *Sandi* comes from *shanty*, which is a French loanword in American English.

It is also interesting to mention that black people in Albany, and also in other American Hungarian communities, are called *cigányok* (gypsies). The word has special content in the community. The farmers often hired Negro families to work as berry pickers during the strawberry season. They always called them "cigányok" (even when speaking English) relegating them to the lowest social class in Hungarian society.

The History of the Albany Community

The Albany community was founded by three Hungarian immigrants in 1896. The three men met in St. Louis and went to Louisiana. They found a very advantageous situation for newly arrived peasants from Hungary there. We must bear in mind that the vast majority of immigrants in the first and greatest emigration wave were landless agricultural labourers who did not plan to settle in the U.S. They wanted to earn money to purchase farmland back in Hungary. A lot of them did in fact go back to Hungary and some of them went again to the U.S. for a second time.

They worked in factories in Ohio, Illinois and New Jersey, or in the coal mines of West Virginia and Pennsylvania. Some of them, however, sought farmland in scattered parts of the country. The Brackenridge Lumber Company was in need of reliable, steady labourers in the sawmill. (The company was established in the Albany area in 1893.) At the same time, cut-over timberland could be purchased and turned into farmland. This was enough inducement for the three men to settle, and to write to friends and relatives in the U.S. encouraging them to join the community. They also put advertisements in the Hungarian - language newspapers in the East and Midwest. The endeavours of the first settlers were successful and by 1908 approximately 40 families settled in the area. By 1910 this number grew to about 70. In 1916 the sawmill closed and its labourers had to rely on farming as their only source of income. By the late 1920's there were about 175 families in Albany. That was the heyday of the Árpádhon community. Most of the immigrants came from the northeastern counties of pre-First World War Hungary. The majority of them had very little education, five or six years in elementary school, or no education at all in Hungary and did not know any English. We can say that the socioeconomic and sociocultural background of the settlers was basically homogeneous.

Many members of the second generation left the community during the depression of the 1930's. They often returned to the industrial centres of the midwest and some of them went back again to Albany after some years. (Two of my male informants in fact did so.) Some of them settled in the big cities of the area, Baton Rouge or New Orleans. Those who remained became farmers or established small businesses (gasoline service stations or grocery stores).

Members of the second generation could, and still can, speak Hungarian fluently. They were raised in a basically isolated community which had almost no contact with the local white population which in fact resented the intrusion of the Hungarians. Up to the 1940's members of the community did not marry outside the community which as a result is characterized by close kinship ties. From my 17 second generation informants only 5 (3 men, 2 women) have American spouses. (Recent or second marriages, with one exception.) Second generation people learned English when they went to school, until that time they spoke only Hungarian. As one of them put it: "When I went to school I didn't know a word of English."

This in fact is typical of second generation bilingual speakers in all immigrant ethnic groups with similar socioeconomic — sociocultural background. It is the third generation that is shifting to the language of the nation of which they form a part (Thompson 1974). This phenomenon is connected with the general pattern of urbanization, the strong move away from farming, too. My findings in Albany and also in New Brunswick seem to support this general tendency.

As to the size of the community at present, census figures of 1980 show that in the Baton Rouge SMSA (Standard Metropolitan Statistical Area), that includes and in fact mainly consists of the Albany community in this respect, there are 593 persons (287 female, 306 male) five years old and over, living in families in which Hungarian is spoken. Of this total 310 speak Hungarian. If we add the 42 people living alone, the number is 352. From these 276 persons are over 18 years of age.

By comparison, the corresponding figures for the New Brunswick, Perth Amboy, Sayreville SMSA are as follows: There are 10,403 persons five years old and over, living in families in which Hungarian is spoken, 7920 persons speak Hungarian (including 1149 people living alone). Of this total 7406 are over 18 years of age.

These census figures show how much bigger the New Brunswick community is, which in fact includes at least three communities or subcommunities as all the main emigration waves are represented and there are also recent immigrants.

The History of the New Brunswick Community

New Brunswick has been referred to as the most Hungarian city in the United States because proportionally it once had more Hungarians than any other American city. In 1915 Hungarians constituted 18.6% of the total New Brunswick population and in 1970 this percentage was still as high as 15.4%. In 1970 the total population of the town was 41,885. Of this total, Hungarian foreign stock was reported as 2,588. Though 2,670 persons reported Hungarian as their mother tongue or language spoken in the home, not counting third

generation Hungarians, with them the number would rise to a total of 6,470 (Molnár 1977).

The first Hungarian family settled in New Brunswick in 1888. Ever since that time there has been a Hungarian migration to New Brunswick. This tendency can still be observed. Naturally, only a few people arrive nowadays (especially young ones) but every year it gives new impetus to language maintenance in the area.

The Johnson and Johnson Company played an important role in attracting Hungarians to New Brunswick. At one time, nearly two-thirds of the J and J employees were Hungarians. Some skilled workers, especially women, found jobs in the cigar factories. The workers formed associations, e.g. the Hungarian American Athletic Club (1913), the Magyar (=Hungarian) Savings Bank, etc. There are still six Hungarian churches in New Brunswick, (in Albany, there are two). Hungarian is taught as a subject in St. Ladislaus Catholic School and in the Sunday School sponsored by the Hungarian Faculty Alumni Association of Rutgers University. The association was formed in 1960 by educated immigrants of the 1956—57 wave.

It should be mentioned here that the only public school in the United States where Hungarian is taught as an elective subject is in Albany, Louisiana. The program started in 1977, teachers from Hungary teach the pupils Hungarian. The main problem with the program is that it came too late. Not all the pupils choosing Hungarian as one of their subjects come from Hungarian families, and even those who do, are fourth of fifth generation Hungarians; they use Hungarian as a language of songs, games but not as a means of communication.

Conclusions

At this stage of the project I cannot yet present conclusions supported by ample evidence. All the interviews need to be transcribed and carefully analyzed which is a very long process. What I intended to do in this paper was to describe some preliminary findings that seem to support my general impressions, hypotheses about the two bilingual communities concerned.

The old rural Albany community was a stable bilingual community until the 1940's. The process of language shift started in the mid 40's or early 50's with the gradual dying out of the first settlers. Language shift is evidently in full force in the community at present. After the second generation passes away (my 17 second generation informants were between 50 and 80 years of age), the process of linguistic assimilation will probably be even faster. Only one of my third generation informants speaks Hungarian fluently. He is 45 years old and has been in Hungary a couple of times.

If we draw a comparison between the earlier mentioned (see page 1) Fel-

sőőr rural community in eastern Austria (Burgenland) with 400 years of stable bilingualism and the Albany community with only about 90 years of Hungarian — (American) English bilingualism, we can see how much quicker the process of language shift starts in an immigrant community embedded in an alien country, the question of distance might be an important factor, even if it was relatively isolated from the native population.

The community in the New Brunswick area is of a very different type. It is not so isolated as Albany down in Louisiana, is located near New York City and it is a typical urban community. New Brunswick is a difficult community for research because it consists of at least three Hungarian communities. The old-timers are similar to those in Louisiana but the communities of the D. P.s, the 56-ers and the recent immigrants are difficult to explore in terms of social stratification and educational background and how these effect the process of language shift. On the whole I would say that, apart from those who consciously try to maintain Hungarian as the language at home sending their children to St. Ladislaus School to learn Hungarian and to the Hungarian Scout Association, or to the Hungarian Sunday School, the second generation of the 56—57 immigration wave and that of the more recent immigrants are shifting to a much larger extent to English than the second generation of the old-timers did. It seems that the process of language shift is speeding up in our age due to the demands of modern life. Contemporary choldhood with television is different from that of 40 years ago. Children of our age have a different social background; their motivation is different; they want good positions in the social hierarchy; they want to have, or their parents want them to have, the best possible education. All these factors have an influence on the process of language shift.

Though it should also be mentioned that the contacts with Hungary are getting better and a lot of 56-ers and more recent immigrants go to Hungary every one or two years or send their children to Hungary to learn Hungarian from their grandparents. That is a phenomenon that must not be left out of consideration either. Whether it will have any real effect on the process of language shift still remains to be seen.

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INTRANSITIVE PREPOSITIONS IN POLISH[1]

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1. Introduction

Traditional definitions of the category 'preposition' (P) in the English and Polish literature exclude the possibility of analysing certain lexical items as 'intransitive prepositions' — lexical items with the distributional properties of prepositional phrases (PP's) but without a complement. Curme's (1935) definition of prepositions is representative of the tradition in the English literature. According to Curme, a preposition is 'a word that indicates a relation between the noun or pronoun it governs and another word, which may be a verb, an adjective, or another noun or pronoun' (1935:87). A similar definition is adopted in contemporary Polish work on Polish. Saloni and Świdziński, for example, define prepositions as 'a class of uninflected items, whose unique form cannot appear on its own, has a relating function, and requires a specific case value' (1985:95).[2] Given either of these definitions, a preposition always takes a complement.

As far as English is concerned, such definitions have been called into question in works of Jespersen (1924), Emonds (1972), and Jackendoff (1973, 1977). As far as Polish is concerned, however, they are quite widely accepted.

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[1] This is a slightly revised version of the paper read at the 22nd International Conference on Contrastive Linguistics at Turawa, 4—6 December, 1986, based on material in Chapters 1 and 2 of Jaworska 1986. I am grateful to Professor Rebecca Posner and Mr T. F. Hoad for their comments on chapter drafts, to Bob Borsley for helpful discussion of the final shape of the paper, and to numerous Conference participants for their comments and questions. All errors are my responsibility.

[2] *[Przyimki to] klasa leksemów nieodmiennych, których jedyna forma nie jest używana samodzielnie, ma funkcję łączącą i wymaga określonej wartości przypadkowej.* (Saloni and Świdziński 1985:95).

In the present paper, I shall briefly present arguments for distinguishing a class of intransitive prepositions in English (Section 2), and then argue that Polish too has intransitive prepositions (Section 3). The argument involves a comparison between prepositions and verbs, and an examination of the distributional properties of the items in question. Then (Section 4), I shall present a critique of Saloni and Świdziński's (1985) argument that prepositions in Polish are not heads of phrases. In conclusion (Section 5), I shall note some implications of the proposed analysis.

In view of the fact that in some grammatical work, the items under consideration are regarded as 'adverbs', I shall use the term 'prepositional adverbs' from Quirk *et al.* (1985:662) as a neutral term of reference for them, without adopting the view that they really are adverbs. On the contrary, the case for the recognition of intransitive prepositions rests in part on evidence that 'prepositional adverbs' are not 'adverbs'.

2. *Intransitive prepositions in English*

The notion 'intransitive' preposition has been developed on the basis of theoretical as well as empirical considerations. Jespersen's (1924) argument, echoed in Emonds (1972:547) and Jackendoff (1973:346), is of the former type.

Jespersen seeks to establish a greater regularity in the system of parts of speech by drawing parallels between verbs and certain 'particles', which include prepositional adverbs.[3] He suggests (p. 88) that just as verbs like *sing* in his examples in (1) below can be 'incomplete' (i.e. 'transitive') and 'complete' (i.e. 'intransitive'),

(1) a. He *sings a song.*
    b. He *sings.*

so should prepositions be classified in these terms, given that items like *in* and *before* can occur both with and without a complement. His examples in (2) and (3) illustrate.[4]

(2) a. He was *in the house.*
    b. He was *in.*

[3] For Jespersen (1924:91), 'particles' are words that cannot be classified as nouns, adjectives, pronouns, or verbs. Apart from prepositions, this class includes adverbs, coordinating and subordinating conjunctions, and interjections.

[4] The terms 'transitive' and 'intransitive' preposition refer to prepositions that do and do not take a complement, respectively. The term 'transitive' verb is usually applied to those verbs that take a complement and have participial forms that appear in passive constructions. Thus, 'transitive' verbs are only a subset of verbs that can take a complement. Jespersen's term 'incomplete' verbs seems to be appropriate for all complement-taking verbs.

(3) a. He had been there *before breakfast*.
b. He had been there *before*.

What seems to be tacitly assumed in Jespersen's argument has been made explicit by Emonds (1972:547) and repeated by Jackendoff (1973:346). This is that the morphological identity and semantic similarity between the preposition *in* or *before* and the prepositional adverb *in* or *before* suggests that one may be missing a generalization by placing these and similar items in two separate world classes. It looks, then, as if we should say, as Emonds (p. 548) and Jackendoff (p. 348) do, that some prepositions (e.g. *with*, *at*, and *for*) subcategorize for an obligatory NP complement, some (e.g. *before*, *down*, and *around*) subcategorize for an optional complement, and that certain other items with the same distribution as ordinary PP's (e.g. *apart*, *beforehand*, and *away*) are prepositions that subcategorize for no complement. This gives us the following lexical entries for the three types of prepositions:

(4) a. $\begin{bmatrix}\text{with}\\ \text{P}\\ +[_\text{NP}]\end{bmatrix}$ b. $\begin{bmatrix}\text{in}\\ \text{P}\\ +[_(\text{NP})]\end{bmatrix}$ c. $\begin{bmatrix}\text{apart}\\ \text{P}\\ +[_]\end{bmatrix}$

This proposal is quite plausible. It should, however, be supported by empirical considerations. We can do this by a comparison of the distributional properties of prepositional adverbs with prototypical 'ordinary' PP's on the one hand and with prototypical adverb phrases (ADVP's) on the other. By a 'prototypical' PP, I mean a PP consisting of a preposition and its NP complement, and by a 'prototypical' ADVP, I mean an ADVP headed by a central member of the category 'adverb' — an item related to an adjective with, in English, a *-ly* suffix. If it can be shown that prepositional adverbs have the same distribution as PP's but not as ADVP's, then it can be claimed that they are prepositions and not adverbs.

It follows that the fact that prepositional adverbs can appear in the adverbial position does not have any bearing on the question of their category status because, as illustrated in (5), both PP's and ADVP's can appear in that position.[5]

(5) Peter read the minutes $\begin{cases}\textit{beforehand.}\\ \textit{at lunch.}\\ \textit{previously.}\end{cases}$

[5] As Quirk *et al.* (1985:49) note, it is important to distinguish between the category 'adverbial' and the category 'adverb'. (The Polish counterparts of these terms, are respectively, *okolicznik* and *przysłówek*.) The former is a functional category like 'subject' (*podmiot*), 'object' (*dopełnienie*), etc., and the latter is a lexical category of the same type as 'noun' (*rzeczownik*), 'verb' (*czasownik*), etc. Some definitions of syntactic categories imply that only adverbs can function as adverbials.

Four constructions in which prepositional adverbs have the same distribution as PP's have been considered by Emonds (pp. 550-554) in his argument for intransitive prepositions.[6] Below, I shall give examples of a construction not considered by Emonds, which I think make the point quite forcefully.

The construction involves pre-modification of adjectives. As we can see in (6) and (7), in the pre-adjectival position, prepositional adverbs share their distribution with prototypical PP's but not with prototypical ADVP's.[7]

(6) a. **In recent days* / **Since* / *Recently* } *acquired* documents reveal the truth.

b. We always buy { **opposite the abbey* / **away* / *locally* } *grown* vegetables.

(7) **In recent years* / **Since* / *Recently* } *poor* people are now rich.

Given the similarity between prepositional adverbs and PP's, and the contrast between prepositional adverbs and ADVP's, it can be concluded that prepositional adverbs are prepositions, and not adverbs.

3. The Polish data

In this section, I shall argue that certain Polish preposition-like items which appear without a complement should be analysed as intransitive prepositions. (8)—(11) contain the relevant examples.

(8) a. Autobus zatrzymał się *obok dworca*.
bus stopped PRT by station(GEN)
b. Autobus zatrzymał się *obok*.

(9). a. Bank zbudowano *naprzeciw muzeum*.
bank was-built opposite museum(GEN)
b. Bank zbudowano *naprzeciw*.

(10) a. *Wokół domu* chodziły kaczki.
around house(GEN) walked ducks
b. *Wokół* chodziły kaczki.

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[6] All Emonds' arguments are repeated by Jackendoff (1973:345-348).

[7] I am grateful to Mr T. F. Hoad for providing me with the example in (7). For some speakers, all examples in (6) are fairly acceptable.

(11) a. *Wewnątrz domu* było pełno dymu.
inside house (GEN) was much smoke
b. *Wewnątrz* było pełno dymu.

The items in question are standardly classified as 'prepositions' when followed by an NP in sentences like (8a)—(11a), but when not followed by a complement, as in (8b)—(11b), they are 'adverbs' (*przysłówki*; cf. Sambor (1971: 126-128); Grzegorczykowa (1975:116)) or 'particle-adverbs' (*partykuło-przysłówki*; cf. Grochowski (1984:259); Saloni and Świdziński (1985:95-97; 115)).[8] According to Wątor (1969:373), what I describe as prepositional adverbs are regarded as prepositions used as adverbs. According to Klemensiewicz (1937:67), the items in question in (8a)—(11a) are 'defective prepositions' (*przyimki niewłaściwe*), which are adverbs when they appear on their own.

The multiple classification of these items as prepositions and as adverbs resembles the traditional classification of similar items in English. In response to this classification, we can recall Jespersen's comparison between 'incomplete' and 'complete' verbs and 'incomplete' and 'complete' prepositions (cf. p. 172 above). As illustrated in (12), Polish also has verbs of both types and so Jespersen's case for intransitive prepositions based on this comparison is equally plausible for Polish.

(12) a. Zespół *zaśpiewał piosenkę*.
band sang song
b. Zespół *zaśpiewał*.

As far as I am aware, Polish data have not been considered in the light of this argument. It is my task, then, to assess the viability of this argument for Polish by considering the empirical evidence for analysing *obok*, etc. in (8b)—(11b) as intransitive prepositions.

As in my discussion of English prepositional adverbs, I shall compare the distributional properties of Polish prepositional adverbs with prototypical PP's and prototypical ADVP's. The latter, in Polish, are phrases headed by forms related to adjectives, ending in *-o* or *-e* such as, for example, *daleko* 'far' and *wcześnie* 'early', whose related adjectives are, respectively, *daleki* 'far' and *wczesny* 'early'.

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[8] According to Saloni (1974:100), and Saloni and Świdziński (1985:95, 97), the class of 'particle-adverbs' is a heterogeneous set of items, which do not meet the criteria for any other lexical category, including prepositions an adjective-related adverbs. It resembles somewhat Jespersen's class of 'particles' (cf. note 3 above). In my argument below, the fact that prepositional adverbs do not pattern with prototypical ADVP's is not of any consequence for this position. However, the fact that prepositional adverbs have the same distribution as prototypical PP's argues that they should not be regarded as members of an unrelated category with unpredictable properties.

We look first a subjectless precidative construction such as in (13).

(13) Dziadkowi było *blisko do dworca.*
granddad(DAT) it-was near to station
'It was close to the station for granddad.'

This contains an experiencer NP in the dative case and a predicative ADVP. (14) illustrates that neither the prepositional adverbs not the corresponding PP's from (8)—(11) can appear as predicates in this construction.[9]

(14) *Dziadkowi było { *obok* (*dworca*). / *naprzeciw* (*muzeum*). / *wokół* (*domu*). / *wewnątrz* (*domu*).

Here, then, we have one example of a contrast between prepositional adverbs and PP's on the one hand, and ADVP's on the other.

We turn next to a construction with the verb *wyglądać* 'look' in the sense of 'seem' or 'appear to be'. As illustrated in (15), an ADVP can appear as its complement.

(15) Stąd te drzewa wyglądały *bardzo daleko.*
from-here these trees looked very far

However, neither a PP nor a prepositional adverb can appear in this position:

(16) *Stąd te drzewa wyglądały { *obok* (*dworca*). / *naprzeciw* (*muzeum*). / *wokół* (*domu*). / *wewnątrz* (*domu*).

Finally, we consider the intensifier *tuż*. Like *right* in English, it can modify PP's and prepositional adverbs but not equivalent ADVP's.[10] The examples in (17) illustrate that *tuż* cannot co-occur with ADVP's.

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[9] In accordance with standard practice, in (14) and subsequently, optional elements in example sentences are marked off by parentheses.

All three categories, ADVP's, PP's, and prepositional adverbs can occur as predicates with *być* in non-subjectless sentences, eg.:

(i) Bank był { *dalej* / *naprzeciw* (*muzeum*).
bank was { further / opposite museum

This construction, then, does not provide any evidence for the category status of prepositional adverbs.

[10] The co-occurrence of *tuż* with PP's in Polish is somewhat restricted in comparison with *right* in English.

(17) a. Adam mieszka *tuż blisko.*
Adam lives right near
b. *Wypadek zdarzył się *tuż poprzednio.*
accident happened PRT right previously

The examples in (18) illustrate that *tuż* can modify PP's and prepositional adverbs.

(18) a. Autobus zatrzymał się *tuż obok* (*dworca*).
bus stopped PRT right by station
b. Bank zbudowano *tuż naprzeciw* (*muzeum*).
bank was-built right opposite museum
c. ?*Tuż wokół* (*garażu*) chodziły kaczki.
right around garage walked ducks
d. *Tuż wewnątrz* (*domu*) było pełono dymu.
right inside house was much smoke

It turns out, then, that not only a general comparison between verbs and prepositions but also the distributional properties of prepositional adverbs suggest that they should be analysed as intransitive prepositions.

These intransitive prepositions differ from other prepositions, such as *przed* 'in front', *koło* 'by', *za* 'behind', etc. when they appear without a complement. These prepositions can appear on their own only in a specific linguistic context, such as illustrated in (19), which is an exchange between two speakers.

(19) A: Mam postawić ten wazon koło stołu czy *na*?
have-I put this vase by table or on
'Shall I put this vase by the table or on the table?'
B: Postaw *koło.*
put by

Intransitive prepositions can also appear in such contexts, as the following example illustrates.

(20) A: Posadzić te warzywa obok szklarni czy *wewnątrz*?
plant these vegetables by greenhouse or inside
'Shall I plant these vegetables by the greenhouse or inside?'
B: Posadź *wewnątrz.*
plant inside

Apart from this, however, intransitive prepositions can appear without a specific preceding discourse. Thus, there is a clear contrast in acceptability in the following examples with intransitive prepositions (similar to the examples in (8b)—(11b)) and with transitive prepositions with no com-

plement:

(21) a. *Obok* / *Naprzeciw* / **Koło* } wybudowali nam lotnisko.

by / opposite / by } they-built us airport

b. *Wokół* / **Nad* } mieliśmy piękny widok.

around / *over* } we-had beautiful view

c. *Wewnątrz* / **W* } było całkiem ciepło.

inside / *in* } was quite warm

Given this contrast, it is appropriate not to regard the occurrences of prepositions like *koło* in special contexts like (19) as instances of intransitive prepositions.

4. Polish prepositions as heads of phrases

Having presented the case for intransitive prepositions in Polish, I now return to Saloni and Świdziński's (1985) definition of prepositions (cf. p. 171 above). In particular, I shall consider their view that prepositions in Polish are not heads of phrases.

The data in (8)—(11) above call into question this definition, especially, the clause stating that the unique form of a preposition 'cannot appear on its own'. Saloni and Świdziński would most likely agree that *obok* 'by', *naprzeciw* 'opposite', etc. are prepositions when followed by an NP and these forms — as we have seen — do appear on their own without special linguistic context (cf. (21) above). I think that the lack of discussion in their work of the data I have considered constitutes a significant gap in their account of prepositions and prepositional phrases.

Saloni and Świdziński's inclusion of this clause in the definition of prepositions seems to be a consequence of their conception of heads of phrases, which — I shall argue — is unsatisfactory irrespective of the 'intransitive prepositions' data. Since Saloni and Świdziński give a good deal of prominence to the idea that prepositions are not heads of phrases in Polish and since in recent grammatical theory it is assumed that prepositions are heads of phrases even in languages with a mixture of prepositions and a range of morphological case

forms (see especially Jackendoff (1977), Emonds (1985)), it seems worth discussing Saloni and Świdziński's position.

The only reason that they have for denying prepositions the status of a head is that prepositional constituents of which they are a part cannot be reduced to the preposition itself (p. 54). For example, *z kina* 'from the cinema (GEN)' cannot be reduced to *z*. Since a phrase like this cannot be reduced to the noun (or NP) alone either, they conclude (p. 55) that phrases like *z kina* are exocentric (i.e. head-less) preposition-nominal (PNP) phrases (*frazy przyimkowo-nominalne* (*PRNP*).

It is not clear what general criterion Saloni and Świdziński are appealing to here. Either they claim that it must be possible for all members of a category to appear on their own for it to be a head, or they claim that only some members of a category must have this ability. If they assume the former, then they cannot regard Polish adjectives as heads because it is not possible for all of them to appear on their own, e.g.,

(22) a. Tomek jest *skłonny do żartów.*
Tomek is inclined to jokes
b. *Tomek jest *skłonny.*
Tomek is inclined

and they cannot regard English verbs as heads because it is not possible for all of them to appear on their own, e.g.:

(23) a. He's been *eating.*
b. *He's been *devouring.*

Furthermore, if they assume that it must be possible for all members of a category to appear on their own for it to be a head, then Polish verbs count as heads only if utterances like (24)B are considered as legitimate examples of verbs appearing on their own.

(24) A: Nie jestem pewien, czy Piotr przekona
not I-am sure whether Piotr will-convince
ją do małżeństwa.
her to marriage
'I'm not sure if Piotr will talk her into marriage'.
B: *Przekona.*
'He will.'

Such 'reductions' of verb phrases to verbs alone are possible in specific linguistic contexts but not as meaningful utterances in their own right (cf. Polański 1966:87).

But if verbs in such contexts count as heads, then prepositions will also because — as we have already seen — any preposition can appear on its

own in similar circumstances (cf. (19) and (20) above). (25) and (26) contain further examples of this point.

25) Kazałem, by usiedli przy stole, a nie *na*.
I-told that they-sat at table and not on
'I told them to sit at the table, not on the table.'

26) A: Czy wypadek zdarzył się przed koncertem?
whether accident happened PRT before concert
'Did the accident happen before the concert?'
B: Nie, *po*.
'No, after.'

It is doubtful, then, whether Saloni and Świdziński assume the strong version of the criterion.

If, however, they assume its weaker version, whereby it is sufficient for only some members of a category to appear on their own for it to be a head, then the fact that *obok* 'by', *naprzeciw* 'opposite', etc. can appear with and without a complement argues for analysing Polish prepositions as heads.[11]

There is one other reason why one should be sceptical about the value of Saloni and Świdziński's criterion for identifying heads of phrases. As far as prepositions are concerned, it has the consequence that among non-heads (e.g. determiners and intensifiers), there is a class of items which have the central characteristics of heads.

It is generally accepted that heads determine the identity and — to a large extent — the structure of phrases of which they are a part.

Most linguists would agree that the fact that a phrase like *an old man* or its Polish counterpart *stary człowiek* contains a noun makes it a 'noun phrase'. Likewise, the fact that a phrase like *quite young* or its Polish counterpart *całkiem młody* contains an adjective makes it an an 'adjective phrase'. That heads affect the structure of the phrase of which they are a constituent can be illustrated with examples of 'subcategorization'. For example, the verb *kick* in English requires an NP but not a clause as a complement (cf. *kick a ball* vs. **kick that he'll walk again*), and the verb *hope* requires a clause but not an NP (cf. *hope that he'll walk again* vs. **hope a ball*).

Polish prepositions have both these characteristics and, in fact, Saloni and Świdziński describe prepositions as having these characteristics. As was noted earlier (cf. p. 179 above), they label a phrase that contains a preposition a 'preposition-nominal phrase' — obviously distinct from a phrase not con-

[11] It is woth noting that not even the weaker form of the criterion is accepted within the Government-Binding framework, in which INFL and COMP are regarded as heads of S and S-bar, respectively (cf. Chomsky (1985)). Neither S nor S-bar can be reduced to these elements.

taining a preposition. Furthermore, if the case form of the NP complement of a preposition is a component of the structure of the 'preposition-nominal phrase', then prepositions determine this aspect of the structure of the phrase through their specific requirements.

Given that Polish prepositions have both these central characteristics of heads, analysing them as non-heads is a problematic position in any restrictive approach to grammatical description.

5. Conclusion

In this paper, I have presented the case for recognizing a class of 'intransitive prepositions' in Polish as well as in English. This is analogous to the class of 'intransitive verbs' and includes lexical items traditionally classified as 'adverbs' (or as 'particle-adverbs'). In comparing the distribution of these items with the distribution of 'ordinary' PP's and ADVP's I hope to have demonstrated that this position is well-motivated. Turning to a separate but related issue, I have provided a critical evaluation of Saloni and Świdziński's (1985) claim that prepositions in Polish are not heads of phrases.

The recognition of intransitive prepositions extends the membership of the category 'preposition' but it reduces the heterogeneity of the category 'adverb' (or 'particle-adverb'). It also undermines traditional definitions of prepositions while allowing a more adequate classification of the items in question.

In my discussion, I referred only to four lexical items for which the 'intransitive preposition' analysis is appropriate. Further attempts at the classification of other preposition-like items (simple and complex) which can appear with or without a complement should include a consideration of the 'intransitive preposition' option.

Finally, let me note that there are, I think, good reasons for analysing the Polish demonstratives *tu* 'here', *wtedy* 'then', *stąd* 'from-here', *przedtem* 'beforehand', etc. as intransitive prepositions rather than '(pronominal) adverbs' or 'pronouns', as they are usually referred to in the literature. Arguments for and a discussion of some of the implications of this position can be found in Jaworska (1986).

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COGNITIVE PROCESSES IN APACHEAN ENGLISH*

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Language contact situations are not only living laboratories of diachronic processes shedding light on many questions posed by historical reconstruction but also interlingual performances, in and of themselves, provide a window into the nature of human cognition. While social factors are largely responsible for the competition between superstrates and substrates, psychological processes provide operations to cope with the organization of an environment of coexisting linguistic systems. Salient among the strategies of coming to terms with bidirectional linguistic pressures is the role of the mother tongue; however, it is not the only strategy available. It is the goal of this paper to examine in a language contact situation referred to here as Apachean English (AE) three interlingual constraints of which only one is directly attributable to the transfer from the first language (L1). A second constraint concerns the internal reanalysis or regularization of certain structures in American English (L2), while a third is in no way connected to either the substrate or the superstrate but seems to appeal to independent universal cognitive processes available to humans through an innate bioprogram.

The Apachean languages (Western Apache, Navajo, Mescalero, Jicarilla), especially Navajo with over 140,000 speakers, represent the largest contingent of indigenous speech in the United States; however, by the 1960's and 70's it was evident that English as an L2 was gaining ground. Nowadays, it is frequently the case that the children's first and parents' preferred language

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is English, but it is an English variety whose phonology, grammar as well as semantics have been Indianized by the Apachean substratum.

As in most language contact situations, AE shows most definite traces of interlingual transfer from the substrate on the phonological level. It is not the case in AE that pidginization, as Kay and Sankoff (1974) have argued, has contributed to a uniform CV structure regardless of phonological constraints from the L1 or L2. Even in classic pidginization situations, such as Hawaiian English, L1 phonological transfer seems to be evident (Bickerton and Odo 1976).

Navajo and Western Apache have four basic vowels for which length, nasalization and tone are phonemic:

(1) /a/, /e/, /i/, /o/

Since Apachean languages have no glides, English compound vowels such as /ey/ often become /e/ as in /ple/ for *play* in AE. Also, Apachean nasalization of vowels is at times transferred to English when nasals follow vowels, as in /siyniŋ/ for *seeing*. In addition, there is greater tenseness in the articulation of Navajo vowels than in the case of English. This characteristic, when transferred to AE, often results in audible divergence from standard pronunciation.

Furthermore, six of the English consonantal phonemes — /v/, /f/, /ð/, /θ/, /r/, /ŋ/ — have no proximate correspondents in Apachean languages:

(2) ɓ	ɗ	dz	dɬ	j	g			
	t	ts	tɬ	ch	k		kw	
	t'	ts'	tɬ'	ch'	k'			'
	s		ɬ	sh	x	h	hw	h
	z		l	zh	gh			
m	n							
				y			w	

As a result, a number of L1 influenced productions involving consonants are present in AE (Bartelt 1981). For example, /θ/ becomes /f/ in medial and final position as in /befwum/ for *bathroom* and /wif/ for *with*; however, it becomes /ɗ/ in initial position, as in /ɗenk/ for *thank*. Also /ð/ becomes /ɗ/ in initial as well as medial position, as in /ɗiyz/ for *these* and /maɗər/ for *mother*. Another example, /v/ becomes /ɓ/ or /f/ in word initial position and becomes /ɓ/ in worndfinal position, as in /ɓerili/ or /ferili/ for *very* and /glaɓ/ for *glove*. In

addition, /r/ becomes /w/ or /l/, as in /weɗ/ or /leɗ/ for *red*. Since Apachean languages have limited use of consonant clusters, with none occurring in syllable final position, English consonant clusters /kl/ and /gl/ are approximated to Apachean /tɬ/ and /dl/, resulting in AE /tl/ and /dl/.

Few consonants can appear in word final position in Apachean languages; yet, the use of the glottal stop /'/, which is phonemic, is quite frequent in word final position. As a result, productions like /kla'/ for *clock* are quite common in AE; in fact, it is the transfer of this phonological constraint which may be the main contributor to the 'choppy' quality so characteristic of AE.

The Apachean languages share a number of morphological characteristics which are widespread Native American traits. Prominent among these are the highly synthetic processes in both the nominal and verbal phrases. Typically, the root, which is often monosyllabic ,takes on a number of affixes to produce rather complex forms. For example, in Navajo a root noun takes on a pronominal prefix to express possession as in

(3) béégashii bitsee' — the cow's tail
(cow his-tail)

Even Navajo pronouns can take on an affix, representing such categories as postpositions, which function like prepositions in most Indo-European languages, as in

(4) kin bich 'į' yisháát — I am walking toward the house
(house it-toward I am walking)

Thus, postposition suffixes can occur with pronominal prefix forms usually attached to nouns as possessives.

Also, question formation is accomplished in part by using affixes on nouns. Since Navajo employs tone to distinguish meaning as in '*azéé*' (mouth) and '*azee*' (medicine), the use of word pitch to indicate interrogation is not available. Instead, the particle *da'* and nominal suffix *-ísh* signal a question. Thus, a declarative such as

(5) naaltsoos tsé bik'idah siłsooz —
the piece of paper is on the rock

can become an interrogative without rising intonation:

(6) da' naaltsoosísh tsé bik'idah siłsooz —
Is the picee of paper on the rock?

Apachean verbal complexes are composed of stems which are inflected for mode and aspect and to which elements, such as subject and object pro-

nominal forms can be prefixed. For example, Navajo verbs incorporate pronouns representing the pronoun subject and the pronoun object of the verbal action, even though a free form subject or object may be present in the sentence, as in

(7) bilagáanaa bizaad bíhoosh'aah —
I learn English (white man his-language it-I-learn)

Thus, the verbal complex incorporates the pronoun subject prefix *-sh-* and the pronoun object prefix *bí-* with the verb stem occurring in sentence final position. A verb stem by itself has actually only a very abstract meaning but is modified by inflections and prefixes for meanings usually represented by unrelated verbs in Indo-Euorpean languages.

The verb *'aah* in (7) contains an imperfective mode inflection; however, its temporal meaning cannot be translated as strictly present tense, rather, the action is thought of as being incomplete and in the act of being accomplished. In other words, manner and kind of action instead of time are emphasized in modes and aspects.

Modes and aspects combine quite commonly in Apachean languages, resulting in additional verb stem inflections. For example, the imperfective mode may also be continuative in aspect expressing that an action has begun, that it has not been completed and that it will continue over an indefinitely long period of time. The stem form in the continuative aspect of the imperfective mode changes to *—'á* as in

(8) béésh naash'á — I carry a knife

The perfective mode is used when the action is complete but it does not necessarily imply a specific point in past time. The verb stem form is -á as in

(9) taah yi'ą́ — I completed the act of putting it into the water

The progressive mode implies that the action is in progress and the stem form -áál as in

(10) yish'áál — I am carrying it along

The usitative mode refers to an action which is performed habitually and the stem form is *-'ááh* as in

(11) taah yish'ááh — I habitually put it in the water

The iterative mode describes repetition of an action and requires the same stem form *-'ááh* as the usitative; however, the iterative prefix *ná*, connoting repetition is added:

(12) taah násh'ááh — I repeatedly put it in the water

The optative mode is used to express desire or wish and is realized through the stem form *-'aal* and the prefix gho- as in

(13) taah ghósh'áát — I might put it in the water

The semelfactive aspect denotes an action which occurs once and is neither continued nor repeated as in

(14) sétał — I gave him a kick

The repetitive aspect, on the other hand, refers to an action that is repeated several times as in

(15) nánéétáál — I gave him a succession of kicks

Some speakers of Apachean languages may use the repetitive aspect and the iterative mode interchangeably, since the difference between the two is very subtle.

The Apachean verb stem, then, denotes an action or state in a generalized or abstract sense and expresses specific verbal ideas only when it is modified by modal and aspectual inflections and prefixes representing pronoun subjects, objects and other elements. Time of the action is generally of secondary concern; however, it certainly can be expressed by the use of such free form time adverbials as *ńt'éé'* for past time and dooleeł for future time as in

(16) yisháát ńt'éé
(I am walking along it was)

(17) yisháát dooleeł
(I am walking along it will be)

Thus, the Apachean languages share a number of North American areal features such as affixation of many types of elements, especially the prefixation of pronoun markers to nominal roots and verbal stems. An additional widespread Native American characteristic, the weak difference between mode and tense, is also present in Apachean.

As shown in (7) Navajo verbs incorporate pronoun subjects and object in OSV order; however, when the subject and object are also represented by nouns the order is generally SOV in the verbal complex as well is in the proposition

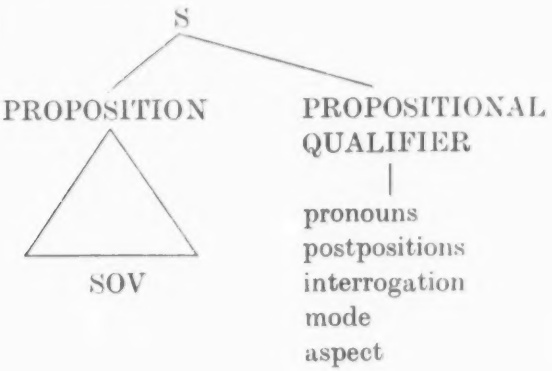
(18) 'ashkii shash yiyiiłtsą́ — the boy saw the bear (boy bear he-it-saw)

Sentences which contain object nouns but no subject nouns also maintain (S)OV word order as in

(19) tsé néidii'ą́ — he picked up a rock (rock he-it-picked up)

The Apachean morphological and syntactic characteristics discussed so far can be represented as in

(20)



Of the many morphological and syntactic idiosyncracies in AE, only a few structures can be isolated with some degree of certainty as the result of interlingual transfer. For example, traces of SOV order are evident in AE

(21) that teacher, I seen her at the store.

Considering that the subject pronoun would be part of the verb in Apachean, this sentence maintains (S)OV order. Also, the redundant use of the masculine gender in AE

(22) the dog he barks

reflects Apachean third person marking which disregards gender and analogizes subject pronoun incorporation in the verbal complex.

However, it is not clear whether other morphological and syntactic characteristics in AE are due to substrate constraints. For instance, the omission of plurals, possessives, agreement, infinitives, gerunds, might actually be the reduction of English surface structure, resulting in the derivational shallowness or internal regularization so common in most contact situations. Studies on another Indian English variety — Isletan English — might illustrate this point. Initially, Leap (1973) was convinced that the English spoken at Isleta Pueblo (New Mexico) was shaped by the phonological and syntactic properties of Tiwa (Aztec Tanoan). Leap even went as far as suggesting that Isletan English be considered a variety of Tiwa and that Isletans were not bilingual in the sense that they controlled two separate linguistic systems. Instead, Leap proposed, they controlled only two separate lexicons which were brought together under a single system of phonological and syntactic rules. In subsequent studies, however, Leap (1976a) qualified this claim when he noticed that L1 constraints did not always take precedence over L2 conventions.

For example, the use of double negatives as in

(23) You *don't* record *none* of your wills or any of your transactions with the BIA

was regarded by Leap as an extension of L2 instead of direct transfer from L1. Yet, he pointed out that nonstandard conventions such as double negation do not always conform to the often assumed uniformity of nonstandard speech. Thus, there is a semantic contrast with single negation in (23), motivated by a similar L1 distinction.

A case of Isletan English grammar which does not have even indirect input from Tiwa is the extension of English number marking on nouns to number marking on verbs as well. As a result, pluralized subjects occur with singular verbs, while singular subjects consistently appear with pluralized verbs as in

(24) There are some *parties* that *goes* on over there
(25) Some *peoples* from the outside *comes* in
(26) Maybe the *governor go* to these parents' homes
(27) About a *dollar* a day *serve* out your term

Leap had at first interpreted these patterns on the basis of transfer of L1 structures but realized later (1976c) that there was an alternative interpretation. He postulated that what was really happening was a kind of re-analysis of English syntax in order to make it conform to underlying Isletan English syntactic motivations such as an appeal to the naturalness of markedness principles. For instance, if number concord in standard English and Isletan English is contrasted, as in

(28) $[\alpha M]_{NP} \rightarrow [-\alpha M]_{VD}$
(29) $[\alpha M]_{NP} \rightarrow \quad [\alpha M]_{VD}$

(29) would have to be considered more natural than (28). Therefore, underlying motivations for productions such as (24)—(27) may not necessarily be tied to L1 constraints.

A similar appeal to natural language properties was made by Leap (1976b) in regard to the use of uninflected BE in Isletan English. Since this seems to be a creole-like feature also found in Black English, monogenesists such as Dillard (1972) have proposed the diffusion of plantation English by escaped slaves who sought refuge among Indians of the Southwest. Leap rejects this interpretation entirely and claims that L2 situations anywhere in a natural fashion will exhibit certain similarities regardless of L1 input. Therefore, in sentences such as

(30) I *be* inside the post office every Thursday at noon

uninflected BE marks a distributive sense often in iterative contexts to

refer to states and events which are periodically discontinued and again resumed. Even though this usage pattern resembles the distributive BE of Black English, Leap (1976b:98) argues for the idea of natural English properties which represent a common potential available to all speakers of English:

> The principle requires the use of an a-temporal verb in deep structure, which is why a consistent agreement in its tense-aspect properties does emerge under formal assessment... The "natural English" argument implies, of course, that any speaker of English could, save for the interference of standard English constraints, use a distributive *be*.

In addition, Leap points out that even standard English speakers use distributive BE when referring to an iterative semantic implication as in

(31) If you don't be quiet, I'm going to spank you!

In short, natural English properties constitute a kind of inter-speech community overlap. These general constraints are in turn controlled by speakers in terms of their idiosyncratic linguistic backgrounds. Stout and Erting (1976:119) add that:

> there are general nonstandard features which operate across ethnic and geographic boundaries — features which may be reflections of universal language properties. These "universals" then interact with specific features from native languages... to yield varieties of nonstandard English... associated with ethnically identifiable communities of speakers...

Thus, Indian English structures may be results of (a) direct L1 transfer, (b) internal reanalysis, sometimes motivated by L1 preferences, and (c) universal processes.

The interaction between these three constraints can be observed especially well in such categories as AUX, as the example of uninflected BE demonstrates. Southwestern Indian languages do not have auxiliary verbs as such but certainly share the universal category of AUX. Steele (1978) has noted that the assumption that AUX is verb-like in all languages may not always be safe. In Apachean, as illustrated in (20), propositional qualifiers like mode/aspectual elements take on the role of auxiliary verbs. In AE productions, indirect L1 AUX constraints seem to surface. This phenomenon, however, cannot be seen in terms of a transfer of certain grammatical structures but as a transfer of semantic notions concerning the nature of states and actions. In traditional Apachean culture, time is viewed not in linear but in cyclical terms based on repetition and predictability of occurring events. Thus, daily activities are scheduled to follow the sun's movements, and it is the repetition of these activities which creates a balance and sense of order. Consequently, tense which reflects linear time such as in Indo-European languages

is of less importance than the type of action, whether it is momentaneous, progressing, continuing, customary, etc.

Several of the modes and aspects in Apachean languages discussed in (7)—(15) express the cyclical nature of Apachean temporality. For example as noted in (11) the usitative mode denotes habituality in performing an act. When this meaning is transferred to AE, the tense sequencing in narrative technique seems to be a manipulation of English tense markers in order to reflect an Apachean sense of temporality. The semantics of the usitative mode surfaces in AE in the use of the English present tense for past contexts:

(32) I *was* working *in* the store this summer. While working at the store, I *met* many people ... Always I *have* to put in gas for the people. Also I *have* to stack things on the shelf. Every day after work I *have* to sweep the floor and clean the counter.

The past tense forms and the reference to *this summer* in the first part of the narrative clearly indicate past context; however, this Navajo L1 speaker shifts to the present tense to describe habitual performances.

Another use of the English simple present tense refers to the Apachean imperfective mode as in (7) which indicates that the action is incomplete but in the process of being completed:

(33) I hope you *have* a good Christmas out there. As for our part, all of us families *have* good Christmas. But no white Christmas though.

The use of the present tense form *have* is an expression of the idea that the celebration of Christmas was not quite over at the time of the production of this text. Therefore, the use of the past tense would have seemed inappropriate to an Apachean L1 speaker thinking in terms of imperfective modality.

An example of interaction between L1 transfer and L2 reanalysis can be seen in

(34) As I *was* a small baby ... my mother *used* to fed me. My grandmother *is* the main one that raise me. When they *go* somewhere they *used* to carry me around. Then when I *got* to be a year old then they *take* me to a hospital and I *stayed* in for a year. Finally they *took* me out of hospital and they *took* me home. There at home I *get* into everything. I *used* to make a big mess. And my mother *used* to get after me.

The first shift in tense occurs in the third sentence of this text. However, it is not due to a transfer of an L1 mode or aspect. Instead, a nonstandard English constraint seems to be at play. In the mind of the speaker, the reference

to past time in this sentence indicates that the grandmother is still alive, while reference to past time might imply that she is dead. A native English speaker would, in fact, resort most likely to the same kind of nonstandard tense usage. On the other hand, the omission of *-d* in *raise* seems to be phonologically based (lack of consonants or consonant clusters in word final position in Apachean, see p. 185); nevertheless, past time seems to be implied. Yet, in the fourth sentence the use of the present in *go* is non-native and refers to an action which was performed habitually, hence the transfer of the usitative mode. This same process can also be seen in th sentence 'There at home I *get* into everything' in which the shift in tense is used to separate the action from the others in the narrative sequence to emphasize its habitual performance.

Independent support for the interaction of constraints described above comes from Wolfram's (1984) study on unmarked tense in English productions of Pueblons. He found the use of present tense (unmarked tense) to be heavily favored in habitual contexts as if habituality is preserved to some extent in the unmarking of tense. In addition, phonological constraints such as the reduction of word final clusters in L1, and L2 contraints such as the use of the historical present are also responsible for the unmarking of tense, according to Wolfram.

The third constraint — universal language processes — can also be detected in the AUX structures of AE. One of the most promising directions of research on universal processes is Bickerton's (1981) concept of a bioprogram which seems to surface in creolization and L1 acquisition and which also seems to play a role in L2 acquisition, according to Huebner (1985). The bioprogram refers to a theorized innate blueprint for human language which includes the capacity for sentential complementation, for making a specific/nonspecific distinction, and for developing an AUX which includes a state/process distinction and punctual/nonpunctual distinction. Bickerton (1981:4) claims to see evidence of a bioprogram of human language primarily in those situations of language contact in which continuity of language transmission has been severely affected, and he restricts his use of the word creole to refer to languages which

1) Arose out of a pidgin which had existed for more than a generation.
2) Arose in a population where not more than 20 percent were native speakers of the dominant language and where the remaining 80 percent was composed of diverse language groups.

This rather narrow definition eliminates a number of languages such as Tok Pisin and Réunion Creole which have traditionally been regarded as creoles. Ruled out would also be the countless other contact situations which have produced massive structural changes in various languages such as Middle

English. However, if the existence of a bioprogram is evident in situations as those defined by Bickerton and if parallels can be detected in L1 as well as L2 acquisition, then fragments of it should surface in other language contact situations as well. In fact, Mühlhüusler (1984) mentions that languages such as Papia Kristang share most of Bickerton's bioprogram features in spite of their not meeting his social conditions.

The American Southwest has never had the social conditions for the creation of ideal creolization models as those envisioned by Bickerton. However, geographic isolation of Indian reservations and a social distance between superstrate and substrate speakers have contributed to a definitely deficient transmission of the superstrate; while, the substrate, of course, continued to be present as a source of input. In Bickerton's definition of social conditions, on the other hand, both the superstrat and the substrate are restricted in availability. Until World War II, the percentage of superstrate speakers on Indian reservations was low and was comprised primarily of government officials, traders, teachers, public health personnel, etc. However, even in the three following decades when off-reservation contact became regular, the ancestral language remained the L1 for most Navajos and Western Apaches (Spolsky and Kari 1974). Thus several generations used a pidginized form of English before children in the mid 1970's began to nativize Indian English. Furthermore, this nativization has occured gradually rather than rapidly as in the classic creolization situation, since American Indians, in the Southwest at least, have been fortunate to be able to maintain communities which range from traditional cultural contexts to rather transitional ones. Therefore, the Indian English situation differs a great deal from the classic creole situation, and even though Indian English differs from the standard, it cannot be labeled a creole in the classic sense. Nevertheless, a number of structures in Apachean English, particularly AUX characteristics regarding tense and aspects, are puzzling when searched for in either the L1 or L2 but seem to make sense when seen as the result of universal processes activated by an innate bioprogram.

In regard to tense and aspect, the bioprogram makes, according to Bickerton's formulations, distinctions between state/nonstate and punctual/nonpunctual. In classic creoles, such as Guyanese, nonpast statives and past nonstatives form a single nonanterior category marked b zero verbal stem forms (Bickerton 1975). On the other hand, past statives are clearly marked and nonpast nonstatives are also marked by the attachment of a nonpunctual marker. The nonpunctual marker never attaches to statives because they are by nature already durative. Bickerton (1981:180) claims that:

> nonpunctuals rather than punctuals are marked because, from a pragmatic viewpoint, nonpunctuals represent the marked case in a Jakobsonian sense: in the real world more actions are punctual than nonpunctual; punctual actions constitute the background against which nonpunctual actions stand out.

Also, on the discourse level, nonpast statives and past nonstatives form a single nonanterior tense with zero verbal stem form since neither one antedates the main topic under discussion.

In AE unmarked verb forms referring to past contexts are not always the result of L1 constraints as discussed in (32) but may reflect cognitive strategies making use of universal processes such as those available through the bioprogram. For example, the zero verb form in AE

(35) The next day we all *gather* in the auditorium

could be attributed to the infrequent cocurrence of final consonant clusters in L1. While that may be a viable explanation for the omission of final *—(e)d* past tense markers in regular verb forms, the situation gets bit more complicated in AE productions such as the following:

(36) Borrowing money and *give* it to them because they *help* her a lot when she *was* sick.

First, the zero form of the irregular verb *give* cannot be explained on the grounds of L1 phonological transfer as the zero form in *help* might be. Second, the occurrence of the past form *was* casts some doubts on the possibility of a semantic transfer of the usitative mode or the imperfective mode as in (32)—(34). What seems to be in order is not an interpretation of (36) based on L1 constraints but an appeal to universal processes independent of L1 which emerge when access to the superstrate is limited.

If the stative/constative distinction of the bioprogram is applied to productions such as (36), a pattern begins to emerge. The zero form verbs *give* and *help* can be classified semantically as nonstatives referring to past time and belonging to the unmarked nonanterior tense. The past form verbs *was*, on the other hand, can be classified as a stative in a durative context referring to past time and thus belonging to the marked anterior tense. Incidentally, it must be emphasized that the stative/nonstative distinction is a semantic one and depends not on the dictionary entry of the lexical item but on the proposition in which the lexical item is used. The following examples from Guyanese illustrate this point (Bickerton 1975:30):

(37) tu an tu mek fo — two and two make four
(38) dem mek i stap — they made him stop

While (37) would be considered a stativ e,(38) would be regarded as nonstative, even though the distinction applies to the same lexical item *mek*.

The punctual/nonpunctual distinction is dependent upon the state/nonstate distinction since nonpunctuals interact with nonstatives by attaching aspectual markers reflecting continuative, iterative or habitual contexts to

them. In many Anglo-creoles *-ing* serves as the nonpunctual marker often without copula as in Guyanese (Bickerton 1975:76):

(39) de *bilin* di bilding — they are building the building

Similarly, *-ing* without copula generalizing especially to habitual contexts can be seen quite frequently in AE production such as

(40) I live by the beliefs that *coming* from both the Navajo culture and christianity
(41) and sometime my sister *leaving* a pie or *leaving* a cake in there

While an interpretation of (40) and (41) based on L1 contraints of the Apachean progressive mode as illustrated in (10) might be possible (Bartelt 1983), it might be equally valid to assume that the universal category of nonpunctual has emerged as an *-ing* marker attached to nonstatives which appear to be of an iterative nature.

The stative/nonstative and punctual/nonpunctual paradigms in AE can be represented in the following manner (Bartelt 1986):

(42)
$$[-\text{anterior}] \rightarrow \emptyset \quad / \quad \left\{ \begin{bmatrix} +\text{stative} \\ -\text{past} \end{bmatrix}, \begin{bmatrix} -\text{stative} \\ +\text{past} \end{bmatrix} \right\}$$

(43)
$$[+\text{anterior}] \rightarrow \textit{was} \quad / \quad \begin{bmatrix} +\text{stative} \\ +\text{past} \end{bmatrix}$$

(44)
$$[-\text{punctual}] \rightarrow \textit{-ing} \quad / \quad \begin{bmatrix} -\text{stative} \\ -\text{past} \end{bmatrix}$$

The choice of *was* in (43) should be qualified somewhat. Actually, it is not necessarily the only marker for past statives in AE; however, it seems to occur quite frequently, as also reported in Cook (1982:241):

(45) He *was go* to the trading post (Apache)
(46) I *was play* with my brother (Navajo)

Cook's (1982:24) analysis does give a hint in regard to a possible underlying pattern of the use of was:

> "A characteristic tense formation among these speakers is the use of *was* plus the simple form of the verb, as in "was go" for "was going." More frequently than not, however, the form "was going" is not the correct tense but should have been the simple past form "went." It is possible that *was*, for some linguistic reason, is being used as a past marker".

The reason when seen from the stative/nonstative distinction perspective becomes clear: *was* functions as a marker of past statives much the same way that *bin* takes that role in Anglo-creoles such as Guyanese (Bickerton 1975 - 35):

(47) dem *bin* gat wan lil haus — they had a little house

In any case, the point is that universal processes seem to be available also in language contact situations other than classic creoles, because some disruption of language transmission (even self-imposed! see Schuman 1976) is invariably present.

In conclusion, this paper has suggested that the processes of L1 transfer, L2 reanalysis and the emergence of universals reveal not only the opportunistic nature of interlingual systems but also the very efficient use of what amounts to the same cognitive process, namely a reliance on prior knowledge, for all three constraints. This strategy of using the known to get to the unknown is most obvious in L1 transfer, especially on the phonological level, as AE and countless other language contact situations have shown. Thus, in AE one of the salient phonological characteristics is the use of glottal stops in word final position, since by analogy they are the closest to English consonant clusters in syllable final position. Similarly, the occurrence of (S)OV sentence order in AE reflects the prior knowledge of such priorities in Apachean. On the semantic level, in this case the use of unmarked verb stems for tense and aspect, the L1 represents only one of several possible sets of prior knowledge, as in the transfer of the Apachean usitative mode in order to preserve habitual contexts. In addition, two other sources of prior knowledge are tapped to resolve linguistic problems. L2 reanalysis, such as the extension of natural English potentials, is due to the bilingual's efforts toward code regularization which is carried out by over-generalization. In other words, the bilingual, in attempting to arrive at a logical or "natural" system, regularizes the input by using only certain features critically and ignoring others and thus overgeneralizes for the purposes of creating associations with previous knowledge. Finally, the access to such paradigms as anterior/nonanterior is only possible if universal processes, such as the state/nonstate and punctual/nonpunctual distinctions are postulated to exist as innate knowledge available to all humans when language transmission is affected. Strong indications for the existence of such innate knowledge also come from L1 acquisition (Bickerton 1981). In fact, if it is theorized that processing can only take place by comparing input to previously accumulated structures, then the presence of a basic innate structure or blueprint becomes a necessary assumption. In short, AE shows the opportunism (Dechert 1983) so characteristic of dynamic systems by letting various constraints interact and selecting the one which is perceived to be the most efficient for doing

a particular job with a minimum of effort but which is part of the common underlying strategy of proceeding from the known to the unknown following a process of association and generalization.

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